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REVISION HISTORY

Version	Date	Page (New)	Section	Description
Ver 2.0	Oct. 11,'06	All	All	Approval Specification was first issued.
Ver 2.1	Nov. 17,'06	10	3.2.3	Delete Internal/External PWM Select Voltage.
Ver 2.2	Dec. 18,'06	12	4.1	Modify The TFT LCD MODULE Diagram
		21	6.2	Correct $1s \leq T_4$
Ver 3.0	Jan. 07,'08	26	8.1	Update CMO MODULE LABEL.

1. GENERAL DESCRIPTION

1.1 OVERVIEW

V260B1- L01 is a TFT Liquid Crystal Display module with 12-CCFL Backlight unit and 1ch-LVDS interface. The display diagonal is 26". This module supports 1366 x 768 WXGA format and can display 16.2M colors(6-bits+FRC colors). The inverter module for backlight is built-in.

1.2 FEATURES

- Excellent brightness 500nits
- Contrast ratio 800:1
- Fast response time (8ms)
- Color saturation NTSC 72%
- WXGA (1366 x 768 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface
- Viewing angle: 160(H)/150(V) (CR>10) TN technology
- Color reproduction (Nature color)
- RoHS compliance

1.3 APPLICATION

- TFT LCD TVs
- High brightness, multi-media displays

1.4 GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Active Area	575.769 (H) x 323.712 (V) (26" diagonal)	mm	(1)
Bezel Opening Area	580.8 (H) x 328.8 (V)	mm	
Driver Element	a-si TFT active matrix	-	
Pixel Number	1366 x R.G.B. x 768	pixel	
Pixel Pitch (Sub Pixel)	0.1405 (H) x 0.4215 (V)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Colors	16.2M	color	
Display Operation Mode	Transmissive mode / Normally White	-	
Surface Treatment	Anti-Glare coating (Haze 25%) Hard coating (3H)	-	

1.5 MECHANICAL SPECIFICATIONS

Item	Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal(H)	625	626	627	mm
	Vertical(V)	372	373	374	mm
	Depth(D)	35.6	36.6	37.6	mm
	Depth(D)	41.2	42.2	43.2	mm
Weight	--	4500	--	g	

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

2. ABSOLUTE MAXIMUM RATINGS

2.1 ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T _{ST}	-20	+60	°C	(1)
Operating Ambient Temperature	T _{OP}	0	+50	°C	(1), (2)
Shock (Non-Operating)	S _{NOF}	—	50	G	(3), (5)
Vibration (Non-Operating)	V _{NOF}	—	1.0	G	(4), (5)

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. ($T_a \leq 40$ °C).

(b) Wet-bulb temperature should be 39 °C Max. ($T_a > 40$ °C).

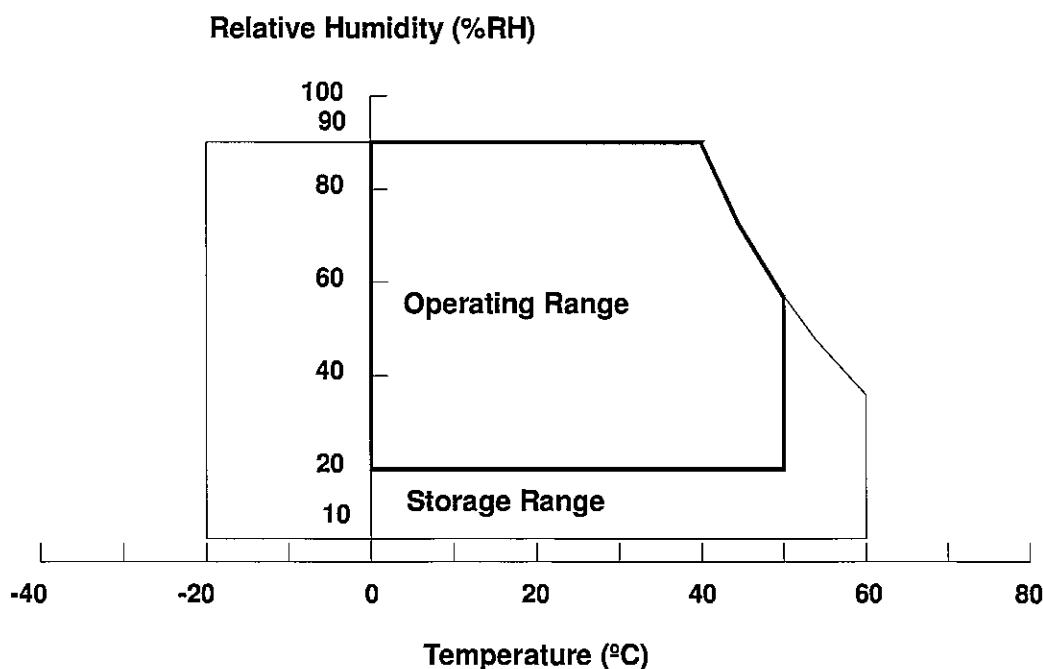
(c) No condensation.

Note (2) The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 60 °C with LCD module alone in a temperature controlled chamber. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 60 °C. The range of operating temperature may degrade in case of improper thermal management in final product design.

Note (3) 11 ms, half sine wave, 1 time for $\pm X$, $\pm Y$, $\pm Z$.

Note (4) 10 ~ 500 Hz, 10 min, 1 time each X, Y, Z.

Note (5) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.



2.2 ELECTRICAL ABSOLUTE RATINGS

2.2.1 TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	V _{CC}	-0.3	6.0	V	(1)
Input Signal Voltage	V _{IN}	-0.3	3.6	V	

2.2.2 BACKLIGHT UNIT

Item	Symbol	Test Condition	Min.	Type	Max.	Unit	Note
Lamp Voltage	V _W	Ta = 25 °C	—	—	3000	V _{RMS}	
Power Supply Voltage	V _{BL}	—	0	—	30	V	(1)
Control Signal Level	—	—	-0.3	—	7	V	(1), (3)

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Functional operation should be restricted to the conditions described under normal operating conditions.

Note (2) No moisture condensation or freezing.

Note (3) The control signals includes Backlight On/Off Control, Internal PWM Control and External PWM Control.

3. ELECTRICAL CHARACTERISTICS

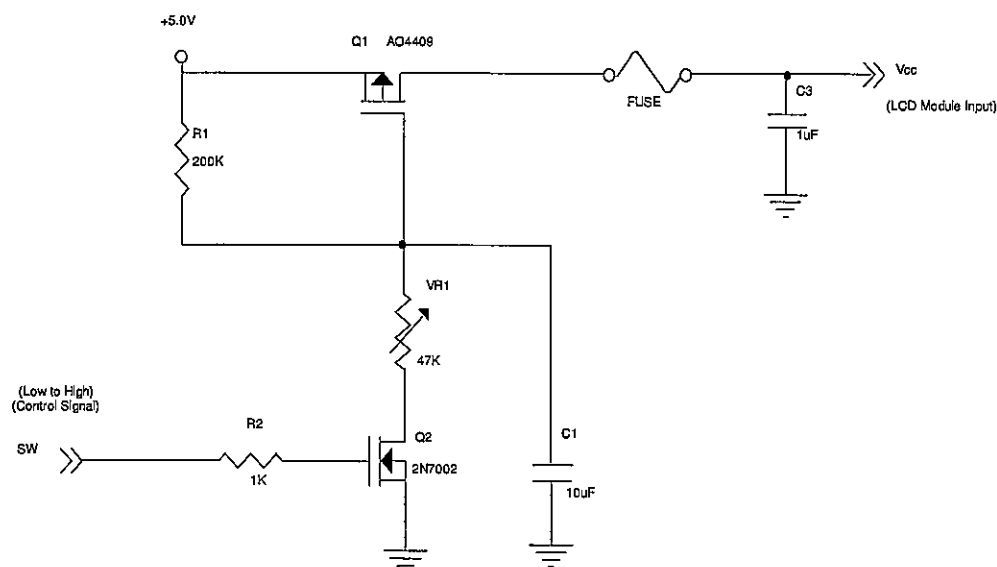
3.1 TFT LCD MODULE

 $T_a = 25 \pm 2^\circ\text{C}$

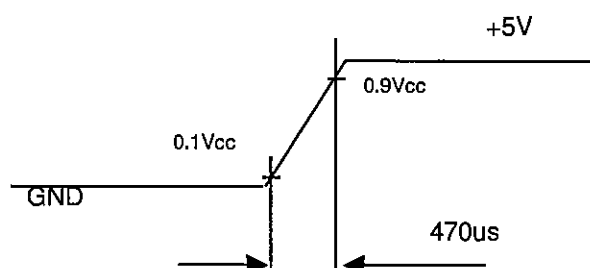
Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		V_{CC}	4.5	5.0	5.5	V	(1)
Power Supply Ripple Voltage		V_{RP}	—	—	100	mV	
Rush Current		I_{RUSH}	—	—	3.0	A	(2)
Power Supply Current	White	I_{CC}	—	0.6	—	A	(3)
	Black		—	1.0	1.3	A	
	Vertical Stripe		—	0.9	—	A	
LVDS Interface	Differential Input High Threshold Voltage	V_{LVTH}	—	—	+100	mV	
	Differential Input Low Threshold Voltage	V_{LVTL}	-100	—	—	mV	
	Common Input Voltage	V_{LVC}	1.125	1.25	1.375	V	
	Terminating Resistor	R_T	—	100	—	ohm	
CMOS interface	Input High Threshold Voltage	V_{IH}	2.7	—	3.3	V	
	Input Low Threshold Voltage	V_{IL}	0	—	0.7	V	

Note (1) The module should be always operated within above ranges.

Note (2) Measurement Conditions:

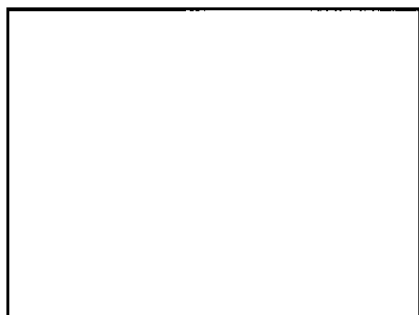


Vcc rising time is 470us



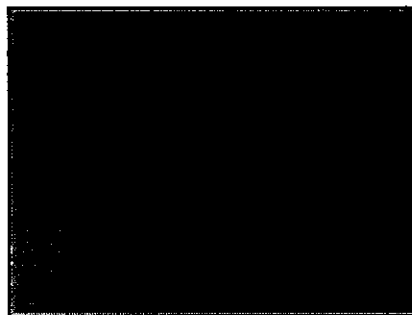
Note (3) The specified power supply current is under the conditions at $V_{CC} = 5\text{ V}$, $T_a = 25 \pm 2\text{ }^{\circ}\text{C}$, $f_v = 60\text{ Hz}$, whereas a power dissipation check pattern below is displayed.

a. White Pattern



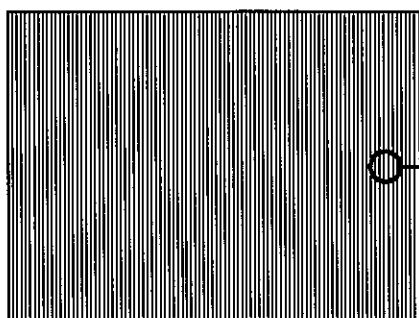
Active Area

b. Black Pattern

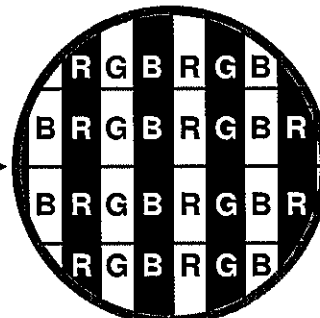


Active Area

c. Vertical Stripe Pattern



Active Area



3.2 BACKLIGHT INVERTER UNIT

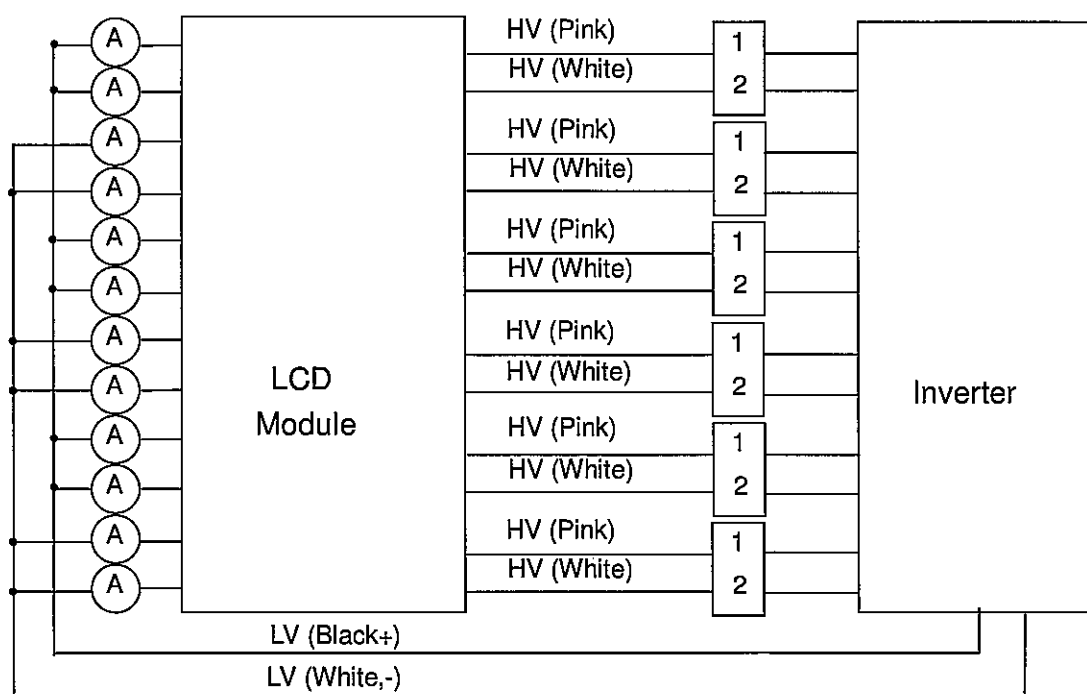
3.2.1 CCFL (Cold Cathode Fluorescent Lamp) CHARACTERISTICS ($T_a = 25 \pm 2\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Lamp Voltage	V_w	-	970	-	V_{RMS}	$I_L = 5.0\text{mA}$
Lamp Current	I_L	4.5	5.0	5.5	mA_{RMS}	(1)
Lamp Starting Voltage	V_s	-	-	1650	V_{RMS}	(2), $T_a = 0\text{ }^{\circ}\text{C}$
		-	-	1500	V_{RMS}	(2), $T_a = 25\text{ }^{\circ}\text{C}$
Operating Frequency	F_o	40	-	80	KHz	(3)
Lamp Life Time	L_{BL}	50,000	60,000	-	Hrs	(4)

3.2.2 INVERTER CHARACTERISTICS (Ta = 25 ± 2 °C)

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Consumption	P _{BL}	-	66	69	W	(5)(6), I _L = 5.0mA
Power Supply Voltage	V _{BL}	22.8	24	25.2	V _{DC}	
Power Supply Current	I _{BL}	-	2.75	-	A	Non Dimming
Input Ripple Noise	-	-	-	500	mV _{p-p}	V _{BL} = 22.8V
Backlight Turn on Voltage	V _{BS}	1650	-	-	V _{RMS}	Ta = 0 °C
		1500	-	-	V _{RMS}	Ta = 25 °C
Oscillating Frequency	F _W	55	58	61	kHz	
Dimming Frequency	F _B	150	160	170	Hz	
Minimum Duty Ratio	D _{MIN}	-	20	-	%	

Note (1) Lamp current is measured by utilizing high frequency current meters as shown below:



Note (2) The lamp starting voltage V_s should be applied to the lamp for more than 1 second under starting up duration. Otherwise the lamp could not be lighted on completed.

Note (3) The lamp frequency may produce interference with horizontal synchronous frequency from the display, and this may cause line flow on the display. In order to avoid interference, the lamp frequency should be detached from the horizontal synchronous frequency and its harmonics as far as possible.

Note (4) The life time of a lamp is defined as when the brightness is larger than 50% of its original value and the effective discharge length is longer than 80% of its original length (Effective discharge length is defined as an area that has equal to or more than 70% brightness compared to the brightness at the center point.) as the time in which it continues to operate under the condition $T_a = 25 \pm 2^\circ\text{C}$ and $I_L = 4.5 \sim 5.5\text{mA}_{\text{RMS}}$.

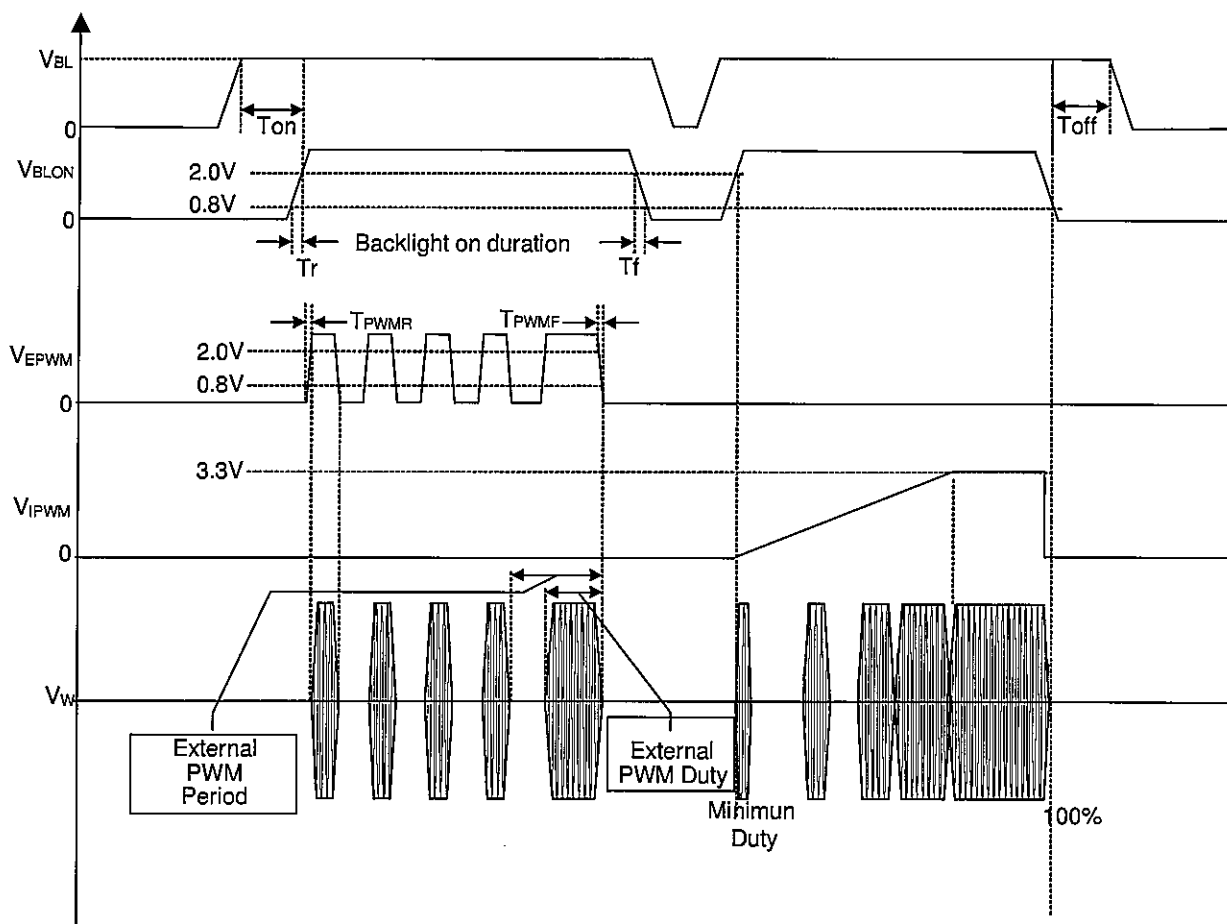
Note (5) The power supply capacity should be higher than the total inverter power consumption P_{BL} . Since the pulse width modulation (PWM) mode was applied for backlight dimming, the driving current changed as PWM duty on and off. The transient response of power supply should be considered for the changing loading when inverter dimming.

Note (6) The measurement of Max. value is based on 26" backlight unit under 24V input voltage and 5.3mA lamp in average after lighting for 30 minutes.

3.2.3 INVERTER INTERFACE CHARACTERISTICS

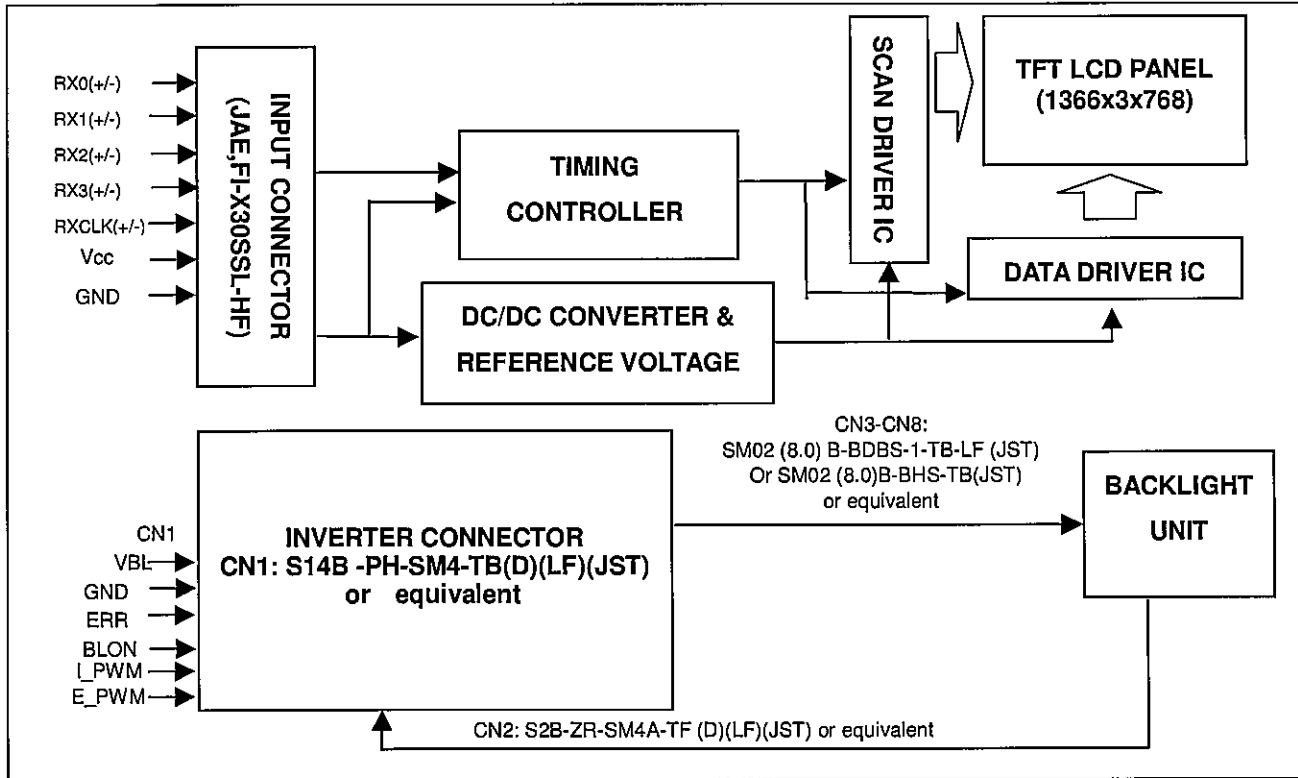
Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit	Note
Error Signal	ERR	—	—	—	—	—	(Note 1)
On/Off Control Voltage	ON	V_{BLON}	—	2.0	—	5.0	V
	OFF		—	0	—	0.8	V
Internal PWM Control Voltage	MAX	V_{IPWM}	$V_{\text{SEL}} = \text{L}$	3.0	3.15	3.3	V
	MIN			—	0	—	V
External PWM Control Voltage	HI	V_{EPWM}	$V_{\text{SEL}} = \text{H}$	2.0	—	5.0	V
	LO			0	—	0.8	V
Control Signal Rising Time	T_r	—	—	—	—	100	ms
Control Signal Falling Time	T_f	—	—	—	—	100	ms
PWM Signal Rising Time	T_{PWMR}	—	—	—	—	50	us
PWM Signal Falling Time	T_{PWMF}	—	—	—	—	50	us
Input impedance	R_{IN}	—	1	—	—	—	MΩ
BLON Delay Time	T_{on}	—	1	—	—	—	ms
BLON Off Time	T_{off}	—	1	—	—	—	ms

Note (1) When inverter protective function is triggered, ERR will output open collector status. In normal operation, the signal of ERR will output a low level voltage.



4. BLOCK DIAGRAM

4.1 TFT LCD MODULE



5. INTERFACE PIN CONNECTION

5.1 TFT LCD MODULE

CNF1 Connector Pin Assignment

Pin No.	Symbol	Description	Note
1	NC	No Connection	(3)
2	NC	No Connection	(3)
3	NC	No Connection	(3)
4	GND	Ground	
5	RX0-	Negative transmission data of pixel 0	
6	RX0+	Positive transmission data of pixel 0	
7	GND	Ground	
8	RX1-	Negative transmission data of pixel 1	
9	RX1+	Positive transmission data of pixel 1	
10	GND	Ground	
11	RX2-	Negative transmission data of pixel 2	
12	RX2+	Positive transmission data of pixel 2	
13	GND	Ground	
14	RXCLK-	Negative of clock	
15	RXCLK+	Positive of clock	
16	GND	Ground	
17	RX3-	Negative transmission data of pixel 3	
18	RX3+	Positive transmission data of pixel 3	
19	GND	Ground	
20	NC	No Connection	
21	SELLVDS	Select LVDS data format	(2)
22	NC	No Connection	(3)
23	GND	Ground	
24	GND	Ground	
25	GND	Ground	
26	VCC	Power supply: +5V	
27	VCC	Power supply: +5V	
28	VCC	Power supply: +5V	
29	VCC	Power supply: +5V	
30	VCC	Power supply: +5V	

Note (1) Connector Part No.: JAE,FI-X30SSL-HF or compatible

Note (2) High: Normal, Ground or OPEN: JEIDA LVDS format

Please refer to 5.5 LVDS INTERFACE (Page 17)

Note (3) Reserved for internal use. Please leave it open.

5.2 BACKLIGHT UNIT

The pin configuration for the housing and leader wire is shown in the table below.

CN3-CN8 (Housing): BDBR-03(4.0)V-1S (JST) or BHR-03VS-1(JST) or equivalent.

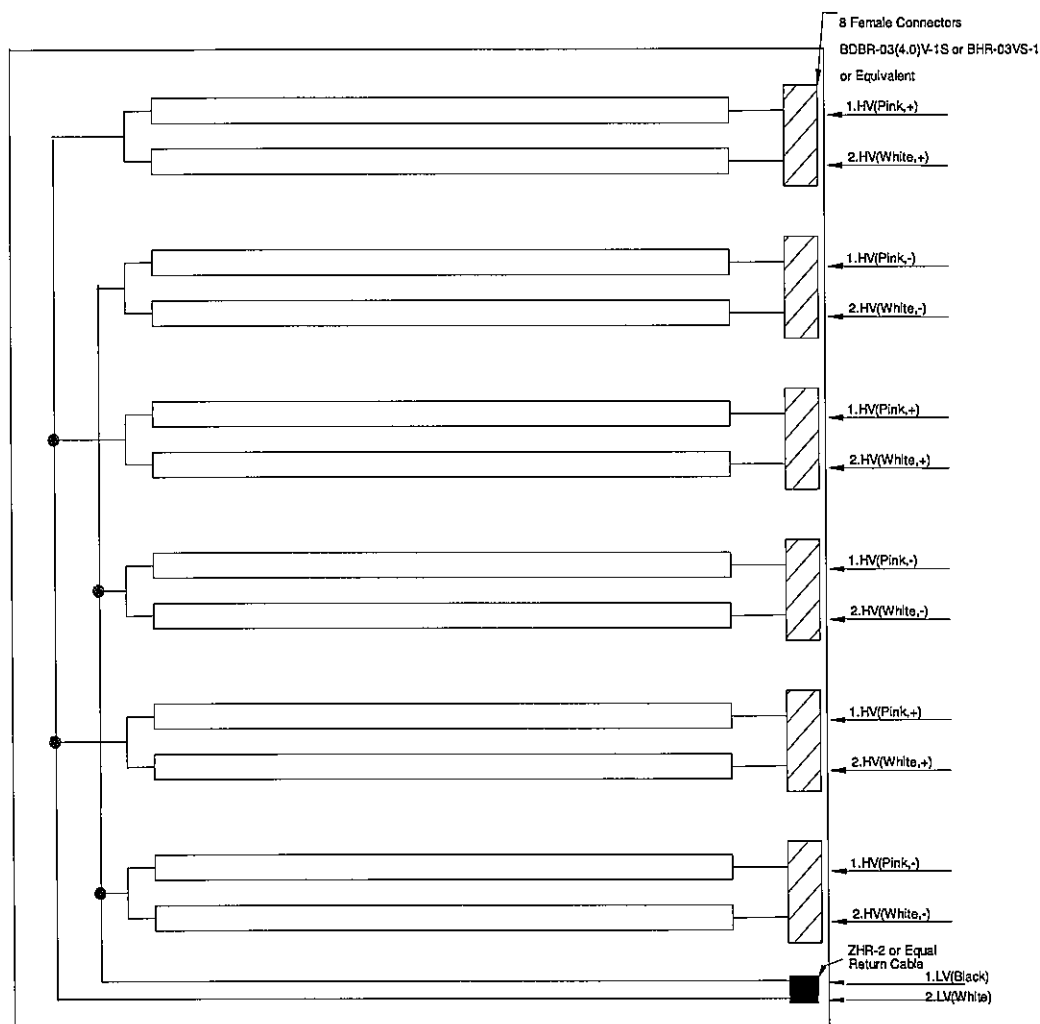
Pin No.	Symbol	Description	Wire Color
1	HV	High Voltage	Pink
2	HV	High Voltage	White

Note (1) The backlight interface housing for high voltage side is a model BDBR-03 (4.0)V-1S(JST),or BHR-03VS-1(JST)or equivalent. The mating header on inverter part number is SM02(8.0)B-BDBS-1-TB-LF(JST)or SM02(8.0)B-BHS-TB(JST) or equivalent.

CN2 (Housing): ZHR-2 (JST) or equivalent

Pin No.	Symbol	Description	Wire Color
1	LV	Low Voltage (+)	Black
2	LV	Low Voltage (-)	White

Note (2) The backlight interface housing and return cable for low voltage side is a model ZHR-2 , manufactured by JST or equivalent. The mating header on inverter part number is S2B-ZR-SM4A-TF(D)(LF) or equivalent.



5.3 INVERTER UNIT

CN1(Header): S14B -PH-SM4-TB(D)(LF)(JST) or equivalent.

Pin No.	Symbol	Description
1	VBL	+24V Power input
2		
3		
4		
5		
6	GND	Ground
7		
8		
9		
10		
11	ERR	Normal (GND) Abnormal(Open collector)
12	BLON	BL ON/OFF
13	I_PWM	Internal PWM Control
14	E_PWM	External PWM Control

Notice:

#PIN 13:Analog Dimming Control (Use Pin 13) : 0V~3.3V and Pin 14 must open.

#PIN 14:PWM Dimming Control (Use Pin 14) : Pin 13 must open.

#Pin 13(I_PWM) and Pin 14(E_PWM) can not open in same period.

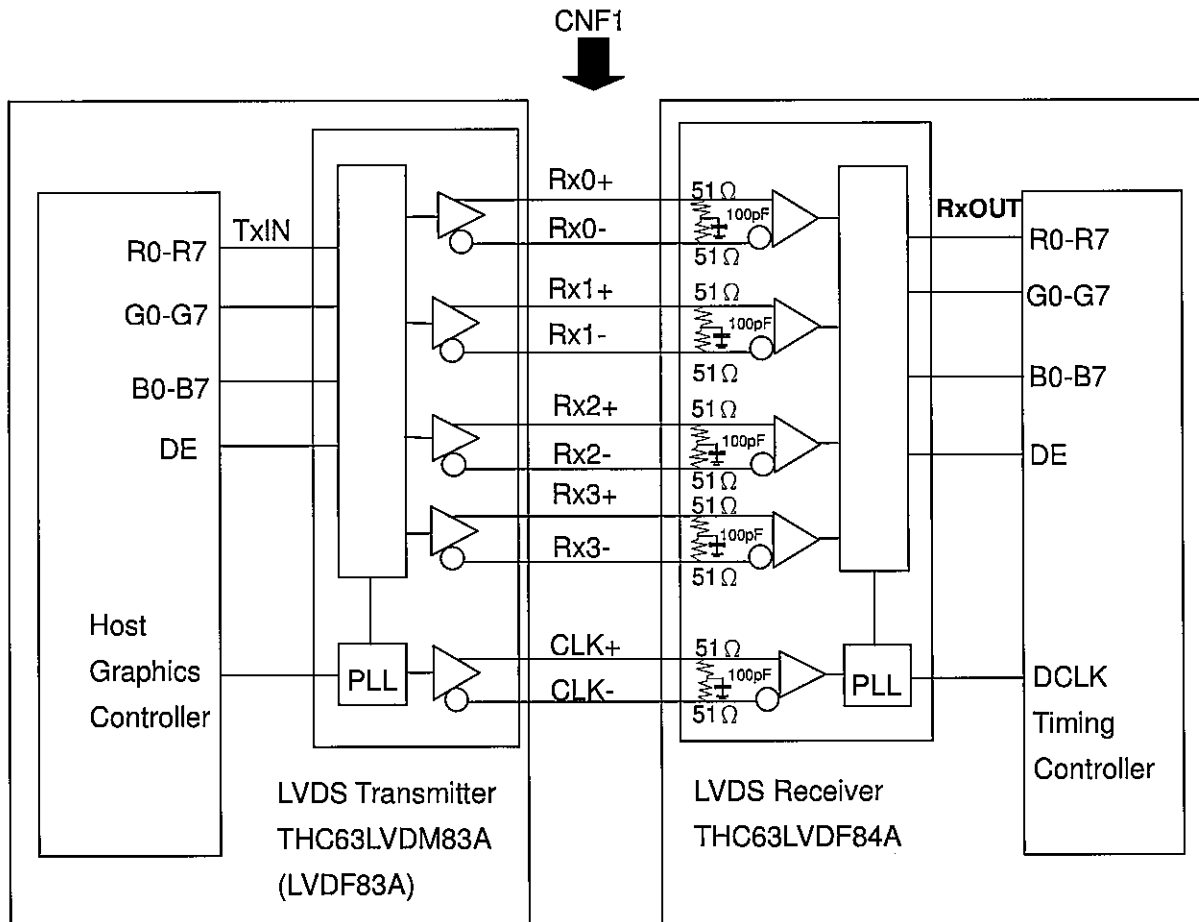
CN2(Header): S2B-ZR-SM4A-TF or equivalent.

Pin No.	Symbol	Description
1	CCFL COLD	CCFL low voltage (+)
2	CCFL COLD	CCFL low voltage (-)

CN3-CN8 (Header): SM02(8.0)B-BDBS-1-TB-LF(JST) or SM02(8.0)B-BHS-TB or equivalent.

Pin	Name	Description
1	CCFL HOT	CCFL high voltage
2	CCFL HOT	CCFL high voltage

5.4 BLOCK DIAGRAM OF INTERFACE



R0~R7 : Pixel R Data
G0~G7 : Pixel G Data
B0~B7 : Pixel B Data
DE : Data enable signal

Note (1) The system must have the transmitter to drive the module.

Note (2) LVDS cable impedance shall be 50 ohms per signal line or about 100 ohms per twist-pair line when it is used differentially.

5.5 LVDS INTERFACE

	SIGNAL		TRANSMITTER THC63LVDM83A		INTERFACE CONNECTOR		RECEIVER THC63LVDF84A		TFT CONTROL INPUT	
	SELLVDS =H	SELLVDS= L or OPEN	PIN	INPUT	Host	TFT-LCD	PIN	OUTPUT	SELLVDS =H	SELLVDS =L or OPEN
24 bit	R0	R2	51	TxIN0	TA OUT0+	Rx 0+	27	Rx OUT0	R0	R2
	R1	R3	52	TxIN1			29	Rx OUT1	R1	R3
	R2	R4	54	TxIN2			30	Rx OUT2	R2	R4
	R3	R5	55	TxIN3			32	Rx OUT3	R3	R5
	R4	R6	56	TxIN4	TA OUT0-	Rx 0-	33	Rx OUT4	R4	R6
	R5	R7	3	TxIN6			35	Rx OUT6	R5	R7
	G0	G2	4	TxIN7			37	Rx OUT7	G0	G2
	G1	G3	6	TxIN8			38	Rx OUT8	G1	G3
	G2	G4	7	TxIN9	TA OUT1+	Rx 1+	39	Rx OUT9	G2	G4
	G3	G5	11	TxIN12			43	Rx OUT12	G3	G5
	G4	G6	12	TxIN13			45	Rx OUT13	G4	G6
	G5	G7	14	TxIN14			46	Rx OUT14	G5	G7
	B0	B2	15	TxIN15	TA OUT1-	Rx 1-	47	Rx OUT15	B0	B2
	B1	B3	19	TxIN18			51	Rx OUT18	B1	B3
	B2	B4	20	TxIN19			53	Rx OUT19	B2	B4
	B3	B5	22	TxIN20			54	Rx OUT20	B3	B5
	B4	B6	23	TxIN21	TA OUT2+	Rx 2+	55	Rx OUT21	B4	B6
	B5	B7	24	TxIN22			1	Rx OUT22	B5	B7
	DE	DE	30	TxIN26			6	Rx OUT26	DE	DE
	R6	R0	50	TxIN27	TA OUT2-	Rx 2-	7	Rx OUT27	R6	R0
	R7	R1	2	TxIN5			34	Rx OUT5	R7	R1
	G6	G0	8	TxIN10			41	Rx OUT10	G6	G0
	G7	G1	10	TxIN11			42	Rx OUT11	G7	G1
	B6	B0	16	TxIN16	TA OUT3+	Rx 3+	49	Rx OUT16	B6	B0
	B7	B1	18	TxIN17			50	Rx OUT17	B7	B1
	RSVD 1	RSVD 1	25	TxIN23			2	Rx OUT23	NC	NC
	RSVD 2	RSVD 2	27	TxIN24	TA OUT3-	Rx 3-	3	Rx OUT24	NC	NC
	RSVD 3	RSVD 3	28	TxIN25			5	Rx OUT25	NC	NC
		DCLK	31	TxCLK IN	TxCLK OUT+ TxCLK OUT-	RxCLK IN+ RxCLK IN-	26	RxCLK OUT	DCLK	

R0~R7: Pixel R Data (7; MSB, 0; LSB)

G0~G7: Pixel G Data (7; MSB, 0; LSB)

B0~B7: Pixel B Data (7; MSB, 0; LSB)

DE: Data enable signal

Notes(1) RSVD(reserved)pins on the transmitter shall be "H" or "L".

5.6 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

Color		Data Signal																							
		Red								Green								Blue							
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Gray Scale Of Blue	Blue(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

6. INTERFACE TIMING

6.1 INPUT SIGNAL TIMING SPECIFICATIONS

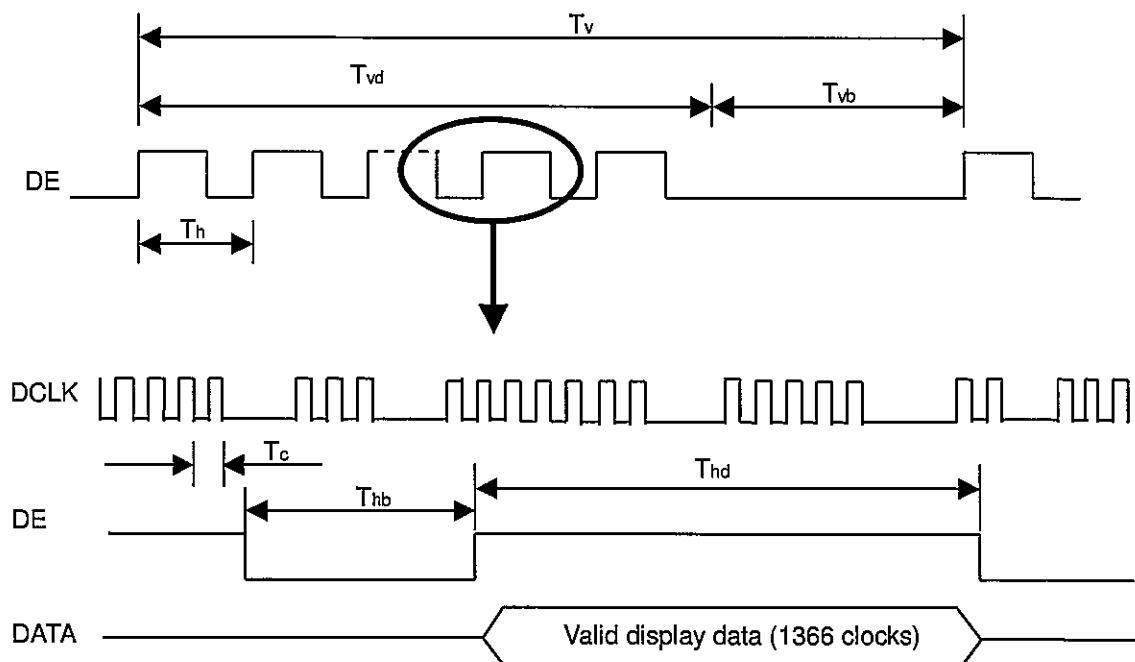
The input signal timing specifications are shown as the following table and timing diagram.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Receiver Clock	Frequency	1/Tc	60	74	82	MHz	
	Input cycle to cycle jitter	Trcl	-	-	200	ps	
LVDS Receiver Data	Setup Time	Tlvsu	600	-	-	ps	
	Hold Time	Tlvhd	600	-	-	ps	
Vertical Active Display Term	Frame Rate	Fr5	47	50	53	Hz	(2)
		Fr6	57	60	63	Hz	
	Total	Tv	778	795	888	Th	Tv=Tvd+Tvb
	Display	Tvd	768	768	768	Th	-
	Blank	Tvb	10	27	120	Th	-
Horizontal Active Display Term	Total	Th	1442	1572	1936	Tc	Th=Thd+Thb
	Display	Thd	1366	1366	1366	Tc	-
	Blank	Thb	76	206	570	Tc	-

Note (1) Since this module is operated in DE only mode, Hsync and Vsync input signals should be set to low logic level. Otherwise, this module would operate abnormally.

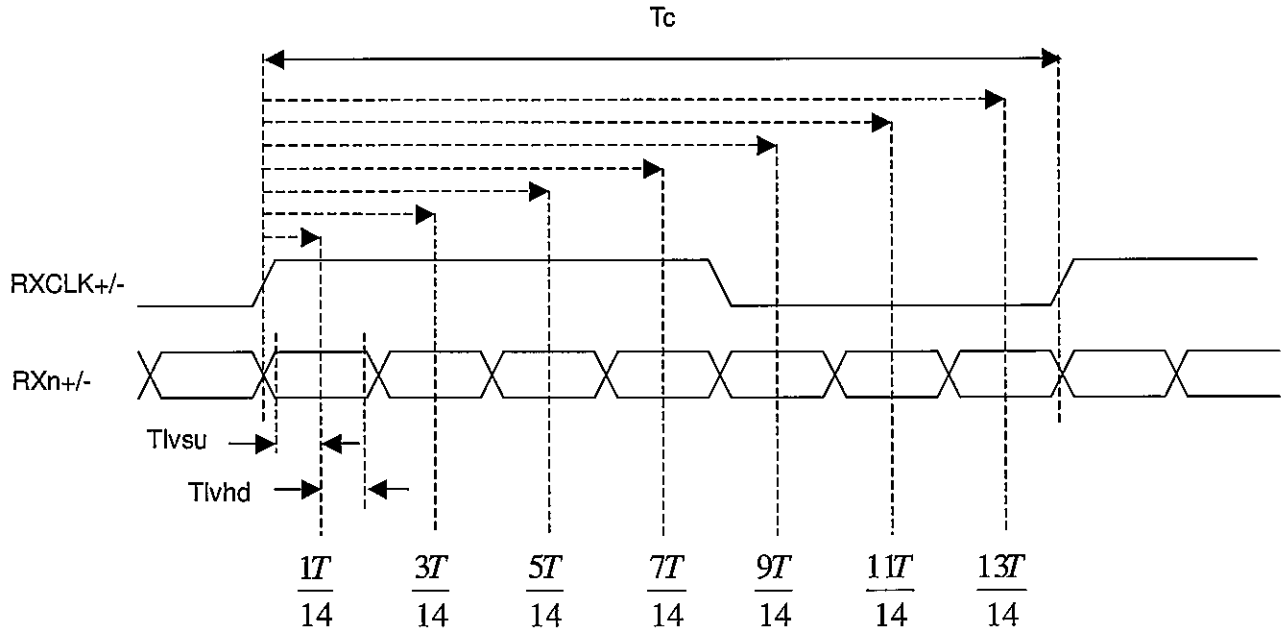
(2) Please refer to 5.1 for detail information.

INPUT SIGNAL TIMING DIAGRAM



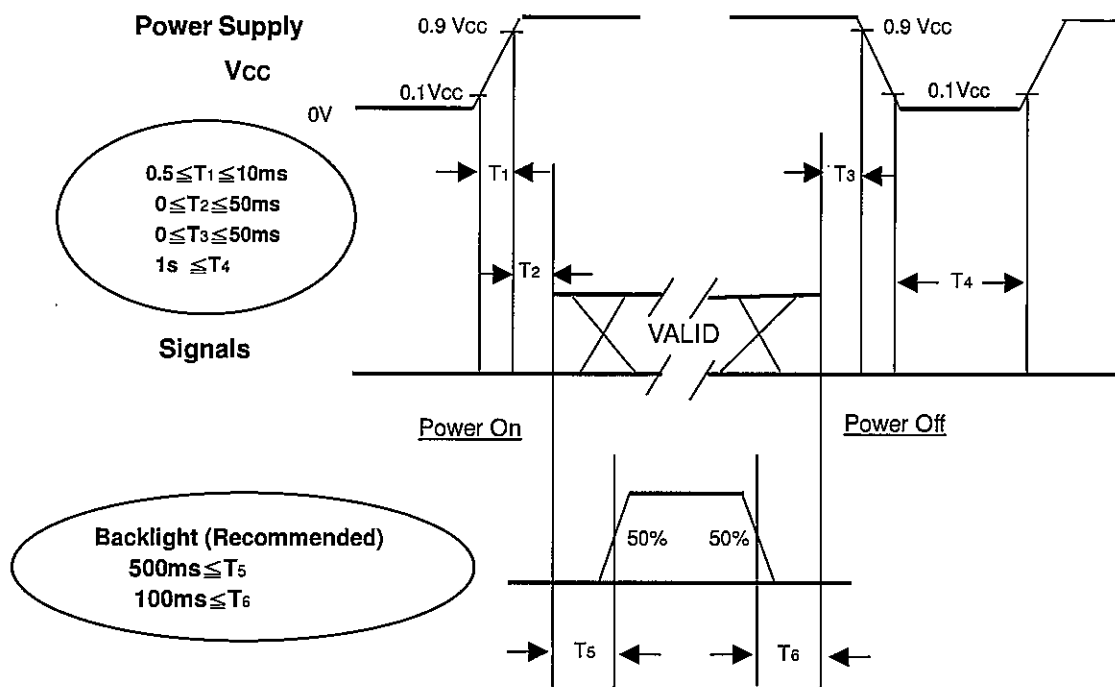


LVDS RECEIVER INTERFACE TIMING DIAGRAM



6.2 POWER ON/OFF SEQUENCE

To prevent a latch-up or DC operation of LCD module, the power on/off sequence should be as the diagram below.



Power ON/OFF Sequence

Note (1) The supply voltage of the external system for the module input should follow the definition of Vcc.

Note (2) Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.

Note (3) In case of Vcc is in off level, please keep the level of input signals on the low or high impedance.

Note (4) T4 should be measured after the module has been fully discharged between power off and on period.

Note (5) Interface signal shall not be kept at high impedance when the power is on.

7. OPTICAL CHARACTERISTICS

7.1 TEST CONDITIONS

Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V _{CC}	5.0	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Lamp Current	I _L	5.0 ± 0.5	mA
Oscillating Frequency (Inverter)	F _w	58 ± 3	KHz
Vertical Frame Rate	Fr	60	Hz

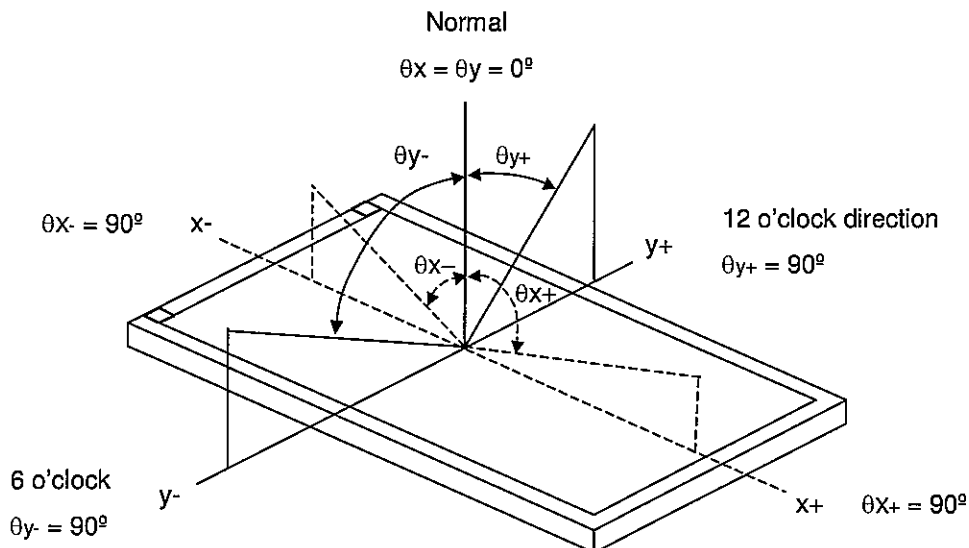
7.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (6).

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	$\theta_x=0^\circ, \theta_y=0^\circ$ Viewing Angle at Normal Direction	600	800		-	(2)
Response Time		T _R			3	5	ms	(3)
		T _F			5	8		
Center Luminance of White		L _C		400	500			(4)
White Variation		δW				1.3	-	(7)
Cross Talk		CT				4	%	(5)
Color Chromaticity	Red	R _x		Typ. -0.03	0.637 0.332 0.268 0.590 0.150 0.059 0.280 0.285	Typ. +0.03	-	(6)
		R _y					-	
	Green	G _x					-	
		G _y					-	
	Blue	B _x	-					
		B _y	-					
	White	W _x	Target					
		W _y						
	Color Gamut		CG				68	
Viewing Angle	Horizontal	θ _{x+}	CR≥10	70	80		Deg.	(1)
		θ _{x-}		70	80			
	Vertical	θ _{y+}		70	80			
		θ _{y-}		60	70			

Note (1) Definition of Viewing Angle (θ_x, θ_y):

Viewing angles are measured by EZ-Contrast 160R (Eldim)



Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

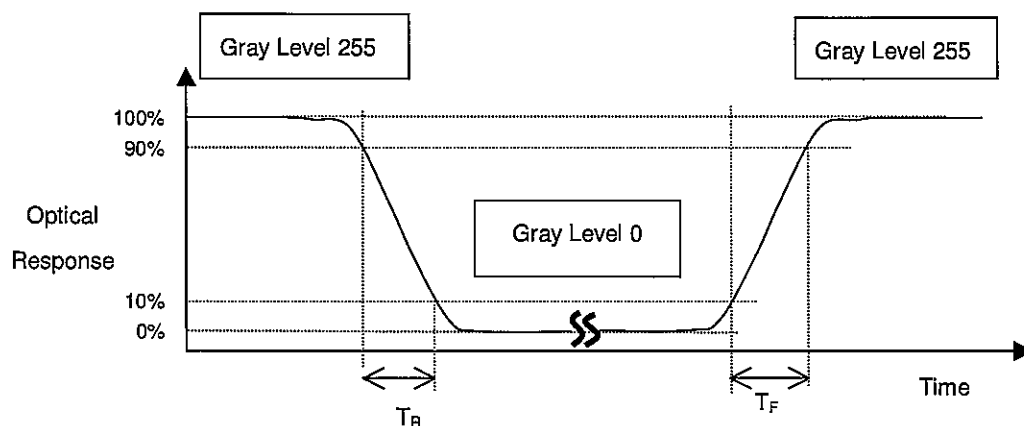
$$\text{Contrast Ratio (CR)} = L_{255} / L_0$$

L255: Luminance of gray level 255

L 0: Luminance of gray level 0

CR = CR (5), where CR (X) is corresponding to the Contrast Ratio of the point X at the figure in Note (7).

Note (3) Definition of Response Time (T_R, T_F):



Note (4) Definition of Luminance of White (L_C):

Measure the luminance of gray level 255 at center point and 5 points

$L_C = L(5)$, where $L(X)$ is corresponding to the luminance of the point X at the figure in Note (7).

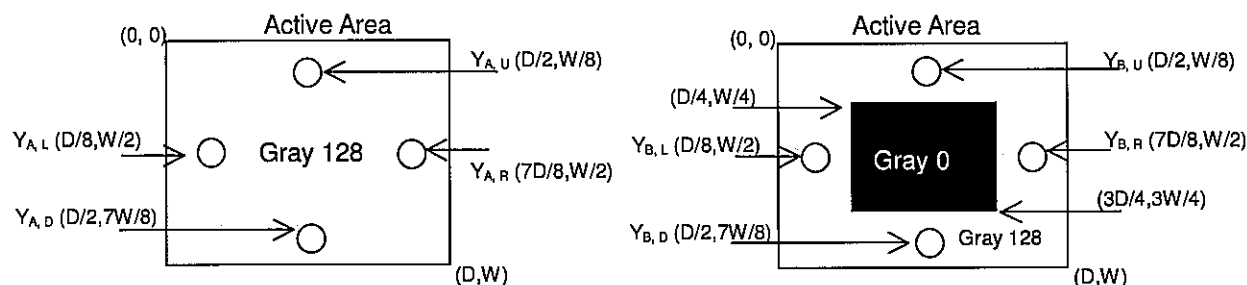
Note (5) Definition of Cross Talk (CT):

$$CT = |Y_B - Y_A| / Y_A \times 100 (\%)$$

Where:

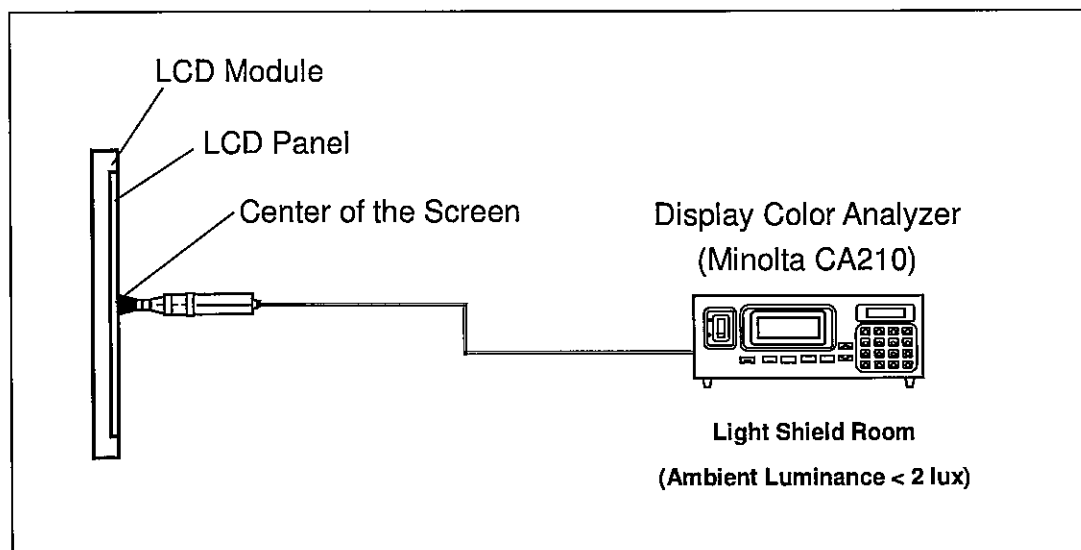
Y_A = Luminance of measured location without gray level 0 pattern (cd/m^2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m^2)



Note (6) Measurement Setup:

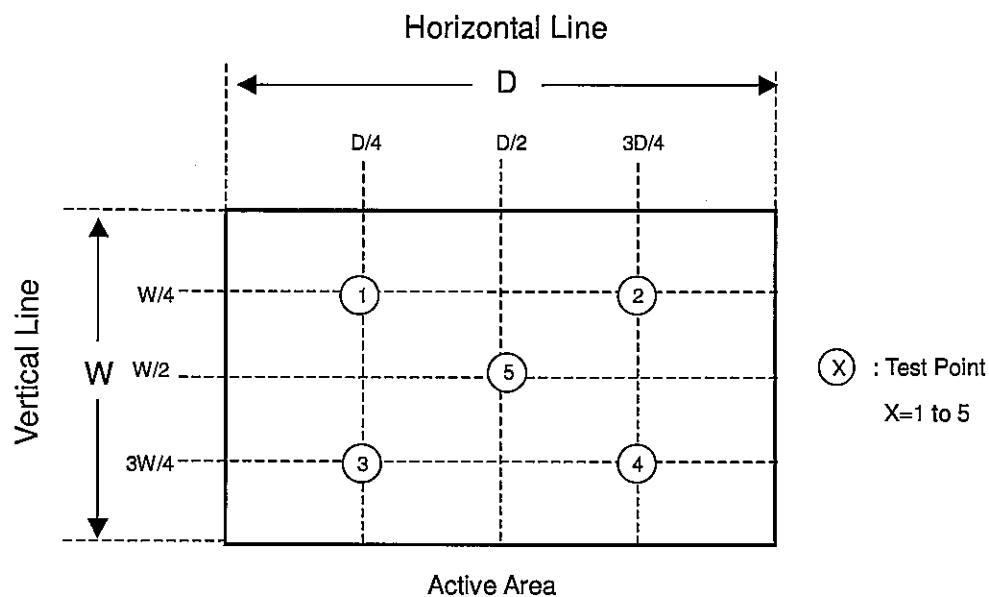
The LCD module should be stabilized at given temperature for 1 hour to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 1 hour in a windless room.



Note (7) Definition of White Variation (δW):

Measure the luminance of gray level 255 at 5 points

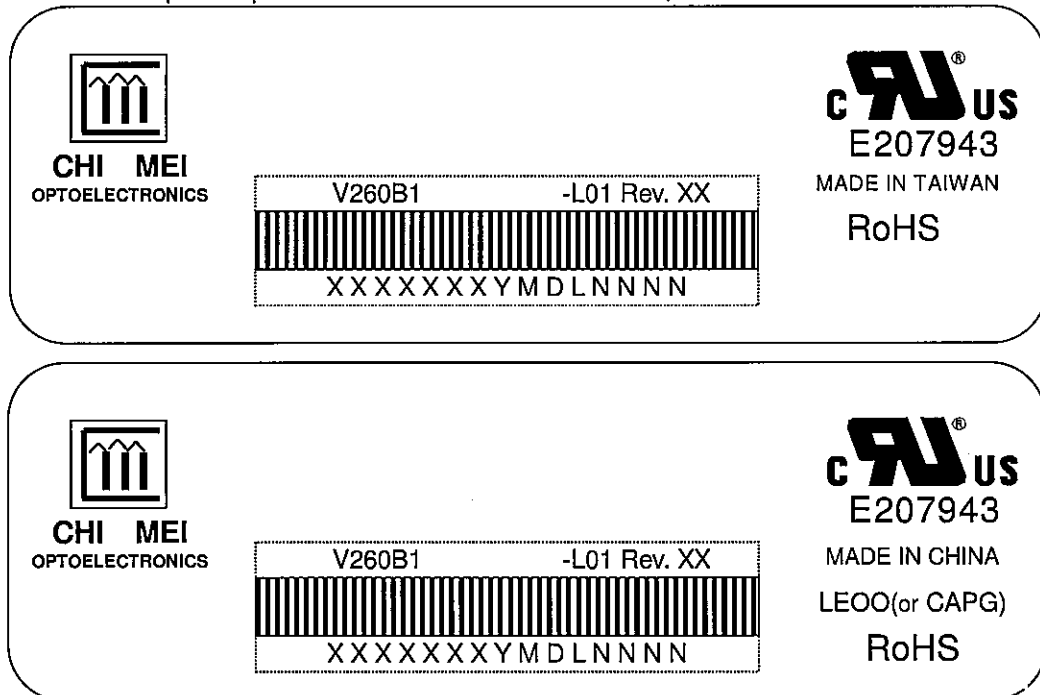
$$\delta W = \text{Maximum } [L(1), L(2), L(3), L(4), L(5)] / \text{Minimum } [L(1), L(2), L(3), L(4), L(5)]$$



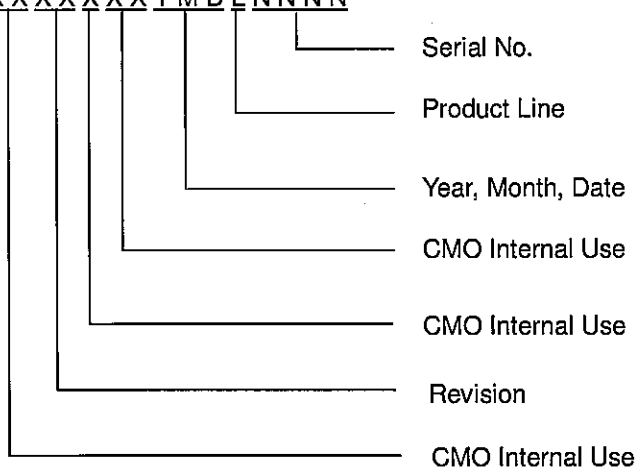
8. DEFINITION OF LABELS

8.1 CMO MODULE LABEL

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.



- (a) Model Name: V260B1-L01
 (b) Revision: Rev. XX, for example: A0, A1... B1, B2... or C1, C2...etc.
 (c) Serial ID: XXXXXXXYMDLNNNN



Serial ID includes the information as below:

- (a) Manufactured Date: Year: 1~9, for 2001~2009
 Month: 1~9, A~C, for Jan. ~ Dec.
 Day: 1~9, A~Y, for 1st to 31st, exclude I, O, and U.
- (b) Revision Code: Cover all the change
- (c) Serial No.: Manufacturing sequence of product
- (d) Product Line: 1 -> Line1, 2 -> Line 2, ...etc.

9. PACKAGING

9.1 PACKING SPECIFICATIONS

- (1) 5 LCD TV Modules / Carton
- (2) Carton Dimensions : 742(L) X 399 (W) X 480 (H)
- (3) Weight : Approximately 25.7Kg (5 Modules Per Carton)

9.2 PACKING METHOD

Figures 9-1 and 9-2 are the packing method

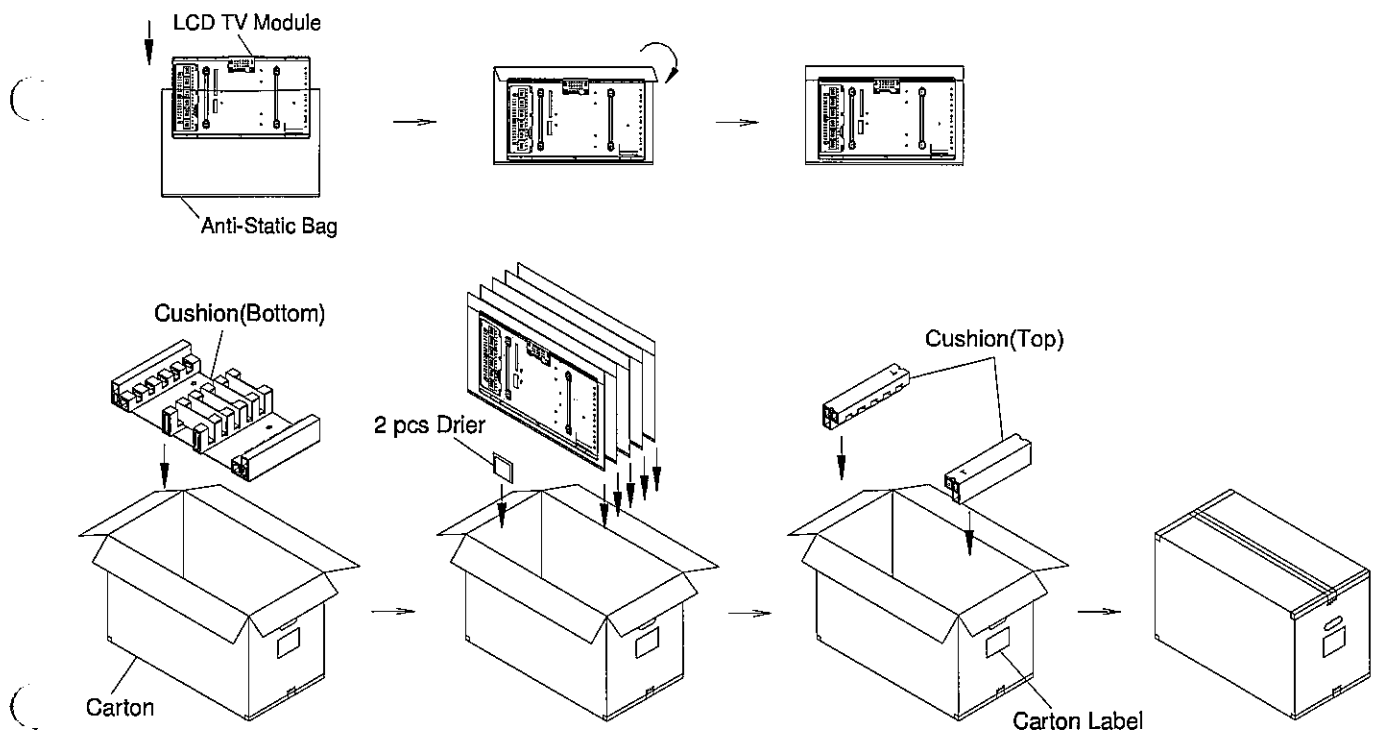
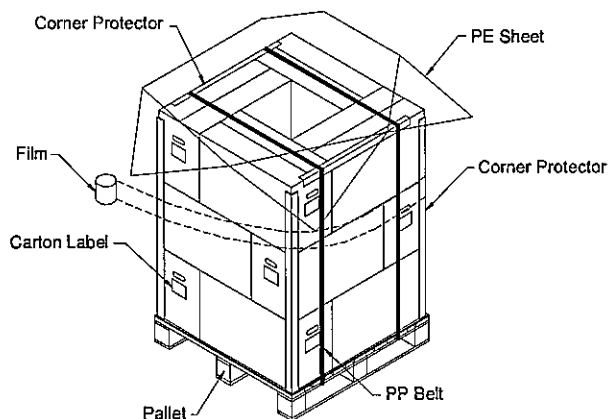


Figure.9-1 packing method

Air Transportation

Corner Protector:L1400*50*50mm
Corner Protector:L1130*50*50mm
Pallet:L1150*W1150*H140mm
Pallet Stack:L1150*W1150*H1580mm
Gross:323kg



Sea Transportation

Corner Protector:L1850*50*50mm
L11300*50*50mm
Pallet:L1150*W1150*H140mm
Pallet Stack:L1150*W1150*H2060mm
Gross:426kg

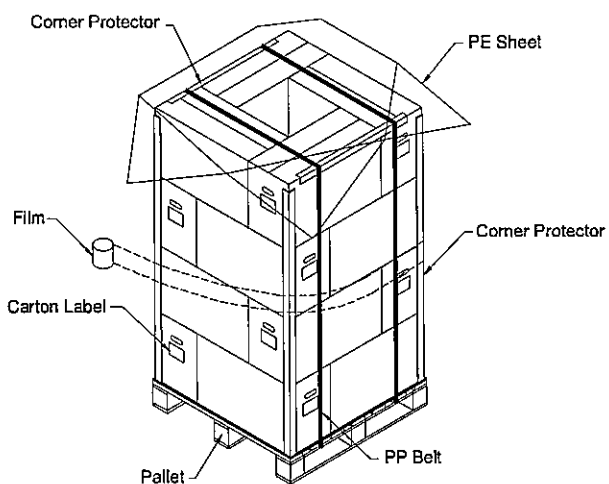


Figure. 9-2 packing method

10. PRECAUTIONS

10.1 ASSEMBLY AND HANDLING PRECAUTIONS

- (1) Do not apply rough force such as bending or twisting to the module during assembly.
- (2) It is recommended to assemble or to install a module into the user's system in clean working areas.
The dust and oil may cause electrical short or worsen the polarizer.
- (3) Do not apply pressure or impulse to the module to prevent the damage of LCD panel and backlight.
- (4) Always follow the correct power-on sequence when the LCD module is turned on. This can prevent the damage and latch-up of the CMOS LSI chips.
- (5) Do not plug in or pull out the I/F connector while the module is in operation.
- (6) Do not disassemble the module.
- (7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.
- (8) Moisture can easily penetrate into LCD module and may cause the damage during operation.
- (9) High temperature or humidity may deteriorate the performance of LCD module. Please store LCD modules in the specified storage conditions.
- (10) When ambient temperature is lower than 10°C, the display quality might be reduced. For example, the response time will become slow, and the starting voltage of CCFL will be higher than that of room temperature.

10.2 SAFETY PRECAUTIONS

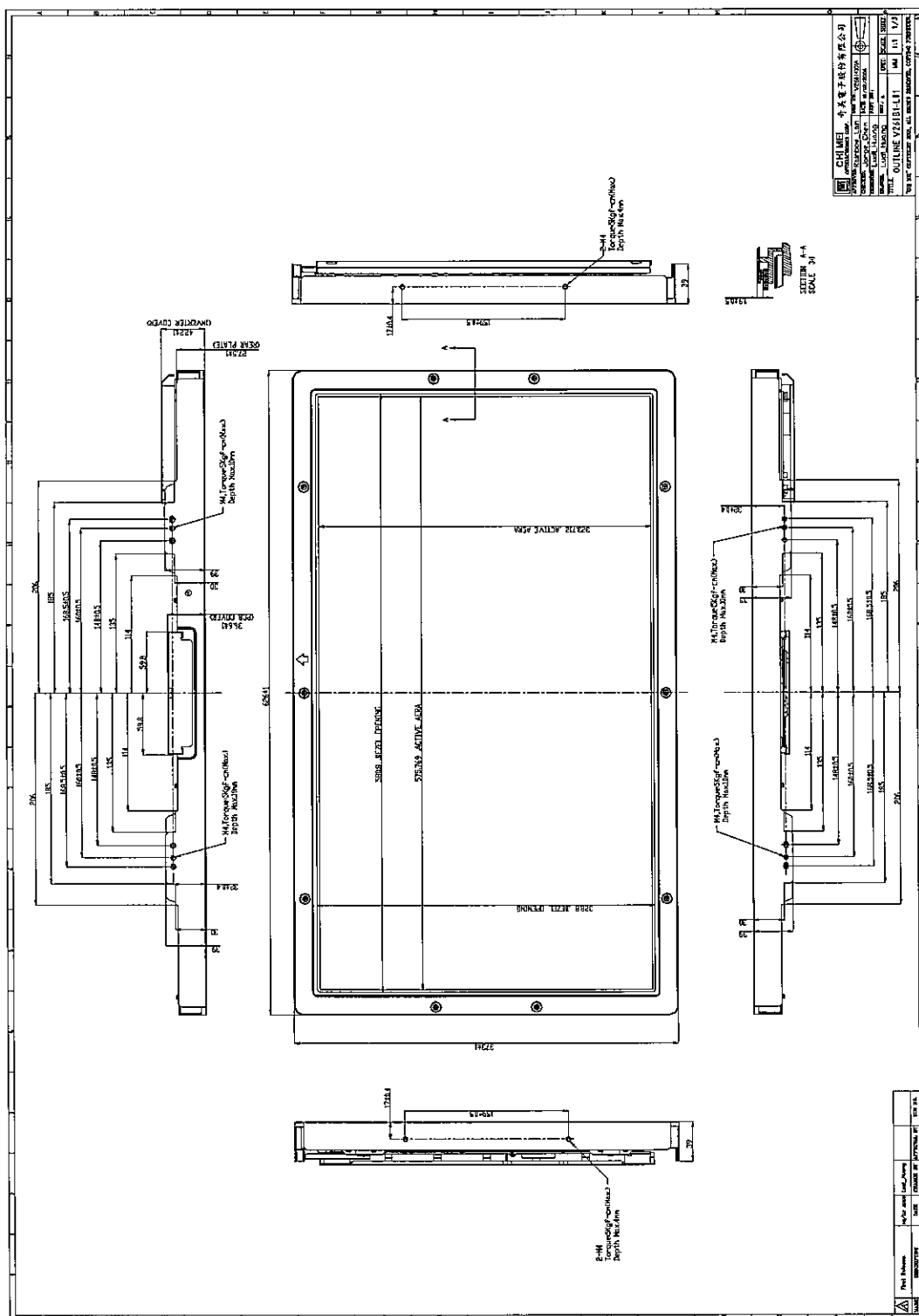
- (1) The startup voltage of a backlight is over 1000 Volts. It may cause an electrical shock while assembling with the inverter. Do not disassemble the module or insert anything into the backlight unit.
- (2) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.
- (3) After the module's end of life, it is not harmful in case of normal operation and storage.

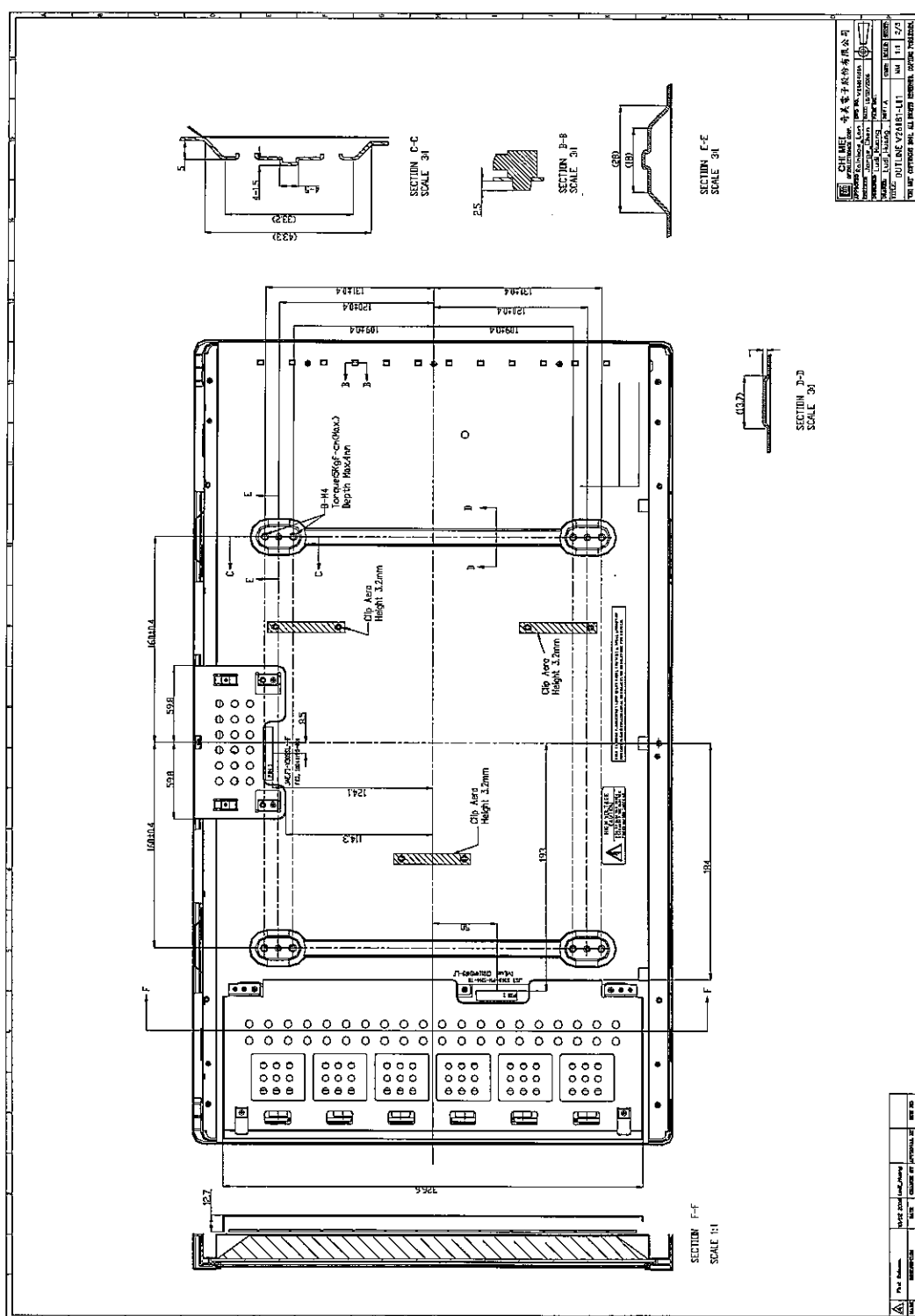
10.3 STORAGE PRECAUTIONS

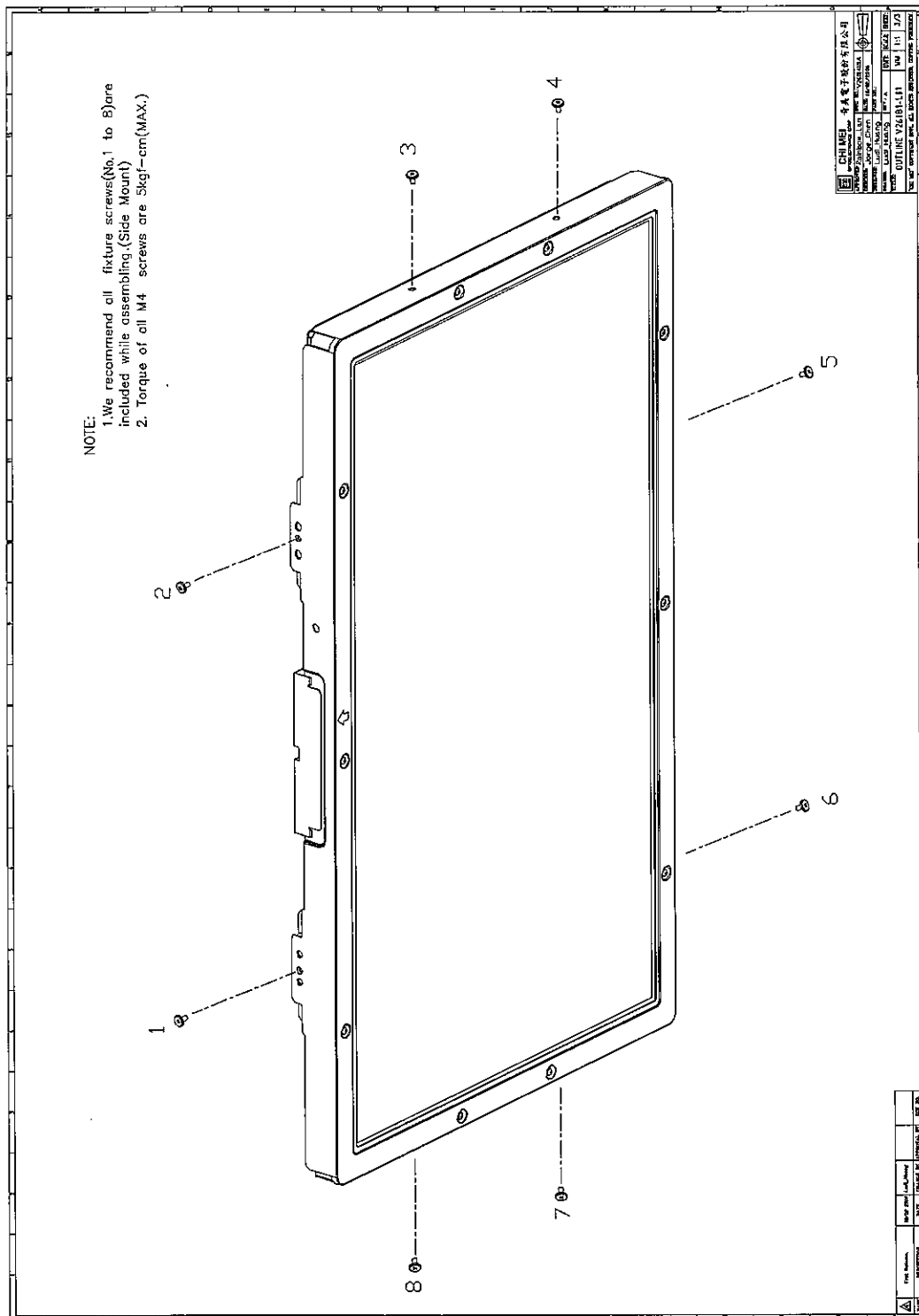
When storing modules as spares for a long time, the following precaution is necessary.

- (1) Do not leave the module in high temperature, and high humidity for a long time.
It is highly recommended to store the module with temperature from 0 to 35°C at normal humidity without condensation.
- (2) The module shall be stored in dark place. Do not store the TFT-LCD module in direct sunlight or fluorescent light.

11. MECHANICAL CHARACTERISTICS



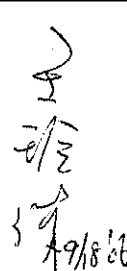
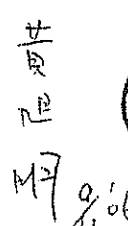




TFT LCD Module Inspection Specification

Model No.: V260 (TV Module)

Customer :
Approved by

Approved by
  



CHI MEI
OPTOELECTRONICS CORP.

Document No.: _____

Issue Date: 2006/09/13

VERSION: 1.0 A

Revision History

Version	Date	Page	Section	Description

Inspection Standards for LCD Modules

1. Description

These inspection standards shall be applied to LCD Module supplied by CHI MEI Optoelectronics Corporation.

2. The environmental condition of inspection

The environmental condition and visual inspection shall be conducted as below.

- (1) Ambient temperature : 15~25°C
- (2) Humidity: 25~75 %RH
- (3) The visual inspection distance: The visual inspection distance of panel between LCD module and inspector's sight should be at 50cm distance or more.
- (4) The viewing angle:
 - a) ± 15 degree to the front surface of display panel in vertical direction.
 - b) ± 45 degree to the front surface of display panel in horizontal direction.
- (5) Ambient Illumination:
 - a) External appearance inspection: 400 ~ 600 Lux
 - b) Light on inspection: 100 ~ 200 Lux

3. Classification of defects

The defects are classified as major and minor defects. The definitions of defects are described as below.

(1) Major defect

The defect may cause the functional failure, or reduce the usability of the product for its purpose.
For example: electrical failure, deformation etc.

(2) Minor defect

The defect doesn't reduce the usability of product for its purpose.
For example: dot defect, mura etc.

※ The judgment of the major and minor defects shall be according to Item 5.
(Classification table of defects)

4. Inspection Criteria

(1) The Definition of the Dot Defect:

If the size of dot defect is larger than 1/2 single dot, it can be regarded as one dot defect.

a) Bright dot: Dot appears brightness and the size is fixed in black pattern.

(It excludes the particle issue and CF defect.)

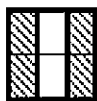
b) Dark dot: Dot appears darkness and the size is fixed in pure red, green, blue pattern.

(It excludes the particle issue.)

c) 2 dot adjacent = 1 pair = 2 dots, the phenomenon is shown as below:



2 dot adjacent



2 dot adjacent



2 dot adjacent (Vertical)



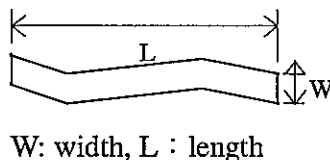
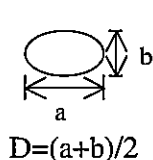
2 dot adjacent (Slant)

(2) Display Defect

Item		Standard
Bright dot	Random	$N \leq 0$
	2 dots adjacent	$N \leq 0$
	3 dots adjacent or more	$N \leq 0$
Dark dot	Random	$N \leq 7$
	2 dots adjacent	$N \leq 2$
	3 dots adjacent or more	$N \leq 0$
	Minimum Distance Between Dark dots	$L \geq 5\text{mm}$
Total bright and dark dot		$N \leq 7$
Foreign Black/White/Bright Spot		$0.5 < D \leq 1.0 \text{ mm}$, $N \leq 10$
Foreign Black/White/Bright Lint		$0.15 < W \leq 0.25 \text{ mm}$, $0.3 < L \leq 10.0 \text{ mm}$, $N \leq 4$
Mura		Judged by 2% ND Filter in 50% gray pattern. (If both customer and CMO agree mutually, CMO will set up limit sample and apply to the criteria with the customer.)
Functional failure (V-line/H-line/Cross line etc.)		Not allowable

(3) Appearance Defect

Item	Standard	
Screw	Missed, incomplete, or deformed assembly is not permitted.	
CCFL cable	Broken cable, burned connector is not permitted.	
Metal frame (Bezel)	Incomplete assembly is not permitted.	
Backlight	Break down	No display of backlight unit is not permitted.
	Crack	The crack is not permitted.
Tape/Label	Incorrect position, missed label is not permitted.	
Connector	Oxidized/rusty connector is not permitted.	
Outline size	Out of spec. is not permitted.	
Stain on Polarizer	The stain, which can't be wiped off, is not permitted.	
Polarizer Scratches	$0.15 < W \leq 0.25 \text{ mm}$, $0.3 < L \leq 10.0 \text{ mm}$, $N \leq 4$	
Dent/Air Bubble	$0.3 < D \leq 1.0 \text{ mm}$, $N \leq 10$	



5. Classification Table of defects

Inspection Item	Description	Defect type
Vertical line	Abnormal line appears in vertical direction	Major
Horizontal line	Abnormal line appears in horizontal direction	Major
Cross line	Abnormal cross line appears in display	Major
No display	No signal outputs in display	Major
Irregular display	Abnormal signal outputs in display	Major
Dots defect	Bright dot, dark Dot or dot adjacent appear in display	Minor
Scratch and Dent on polarizer	Polarizer is damaged on the surface.	Minor
Foreign material	Foreign material appears in display	Minor
Mura	Uniformity is appeared in display	Minor
Polarizer bubble	Polarizer bubble appears in display	Minor



the standard in safety

Underwriters
Laboratories

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

September 4, 2007

Ms. Jasmine Hung
Chi Mei Optoelectronics Corp
Tainan Science-Based Industrial Park
1 Chi-Yeh Rd
Hsin-Shih Village, Tainan Hsien 744
Taiwan

E-mail: weiping@cmo.com.tw

Reference: File E207943 Project 07CA41752 Report Reference Number:
E207943-A71-UL-2, Amendment 2.

Product: UL/CUL Investigation For LCD Module, Model V260B1-XXX, (X= 0-9, A-Z or blank).

Dear Ms. Hung,

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

UL's investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Recognized Marking and/or Recognized Component Mark only at the factory under UL's Follow-Up Service Program to the subject product, which is constructed as described below:

Similar to the subject model, which was submitted to UL for this investigation. The UL Records covering the product will be in the Follow-Up Services Procedure, File E207943, Volume X1, except for employing to alternate one D/A Inverter (manufactured by Chi Mei, P/N: I260B1-12F) and add a new P/N: I260B1-12G of D/A inverter (I260B1-12G is identical to I260B1-12C except for PartNumber).

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Kyle Lin

Kyle Lin
Engineer
Underwriters Laboratories Taiwan Co., Ltd.
Tel: (02) 2896-7790
Fax: (02) 28907442
E-mail: kyle.lin@tw.ul.com

Reviewed by:

Derek Chen

Derek Chen
Section Manager
Underwriters Laboratories Taiwan Co., Ltd.
E-mail: derek.chen@tw.ul.com

CC. International Standards Laboratory
Mr. Jack Lin
Fax: jack_lin@isl.com.tw



the standard in safety

Underwriters
Laboratories

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

September 4, 2007

Ms. Jasmine Hung
Chi Mei Optoelectronics Corp
Tainan Science-Based Industrial Park
1 Chi-Yeh Rd
Hsin-Shih Village, Tainan Hsien 744
Taiwan

E-mail: weiping@cmo.com.tw

Reference: File E240708 Project 07CA41758 Report Reference Number:
E240708-A14-UL-2, Amendment 2.

Product: UL/CUL Investigation For LCD Module, Model V260B1-XXX, where X may be 0-9, A-Z, or
blank.

Dear Ms. Hung,

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

UL's investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Recognized Marking and/or Recognized Component Mark only at the factory under UL's Follow-Up Service Program to the subject product, which is constructed as described below:

Similar to the subject model, which was submitted to UL for this investigation. The UL Records covering the product will be in the Follow-Up Services Procedure, File E240708, Volume X1, except for employing to alternate one D/A Inverter (manufactured by Chi Mei, P/N: I260B1-12F), and add a new P/N: I260B1-12G of D/A inverter (I260B1-12G is identical to I260B1-12C except for Part Number).

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Lily Su

Lily Su
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Ref. Certif. No.

JPTUV-019319

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product
Produit

LCD Module

Name and address of the applicant
Nom et adresse du demandeur

Chi Mei Optoelectronics Corp.
No. 1, Chi-Yeh Rd.
Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744
Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

Chi Mei Optoelectronics Corp.
No. 1, Chi-Yeh Rd.
Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744
Taiwan

Name and address of the factory
Nom et adresse de l'usine

See additional page(s)

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

For construction A: DC 5.5V max., 1A max. (for LCD panel);
DC 26.4V max., 4.3A max. (for DC/AC inverter type);
For construction B: the ratings refer to the test report
Protection class : refer to the test report
CHI MEI OPTOELECTRONICS

Trade mark (if any)
Marque de fabrique (si elle existe)

V260B1-XXX (X = 0-9, A-Z or blank)

Model/type Ref.
Ref. de type

For model differences, refer to the test report.

Additional information (if necessary)
Information complémentaire (si nécessaire)

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 60065:2001
National differences see test report

As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue une partie de ce Certificat

11010593 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland Group

TÜV Rheinland Japan Ltd.
Shin Yokohama Daini Center Bldg.
3-19-5, Shin Yokohama, Kohoku-ku
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Signature:

Dipl.-Ing. W. Hsu

Date: 11.06.2007

1. FIC CZ s.r.o.
K Vypichu 1138
25219 Rudna
Czech Republic
2. Chi Mei Optoelectronics Corp.
No. 12, Nanke 8th Road
Tainan Science Based Ind. Park
Tainan County 741
Taiwan
3. Nexgen Mediatech Inc.
No. 11-2, Jen Te 4th St.
Jen Te Village
Jen Te, Tainan 717
Taiwan
4. Novatech Technology GmbH
Hans-Martin-Schleyer Str. 8
47877 Willich
Germany.
5. CHI MEI OPTOELECTRONICS CORP.
No. 3, Sec. 1, Huanshi Rd, Tainan
Science-Based Industrial Park
74147
Taiwan
6. NINGBO CHI MEI OPTOELECTRONICS LTD.
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Ningbo
P.R. China
7. Ningbo Prowell Electronic Co., Ltd.
Block 16, South District
Ningbo Free Trade Zone
Ningbo 315800
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 11.06.2007

Signature:


Dipl.-Ing. W. Hsu



Ref. Certif. No.

JPTUV-019319-M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

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V260B1-XXX (X = 0-9, A-Z or blank)

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Re-issue of JPTUV-019319 dated 11.06.2007,
due to first modification.

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11010593 002

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Date: 30.08.2007

Signature:

Dipl.-Ing. F. Stolz

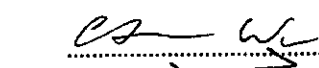
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Block 16, South District
Ningbo Free Trade Zone
Ningbo 315800
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 30.08.2007

Signature:


Dipl.-Ing. F. Stoelzel

TEST REPORT IEC/EN 60 065 Audio, video and similar electronic apparatus Safety requirements	
Report Reference No.	11010593 002
Tested by (+ signature)	Steven Wu 
Approved by (+ signature)	Simon Yu 
Date of issue	Aug. 27, 2007
Contents	Total 8 pages
Testing laboratory Name	TÜV Rheinland Taiwan, Taichung Laboratory
Address	10F, No. 219, Min-Chuan Road, Taichung 403, Taiwan
Testing location	Same as above.
Client Name	Chi Mei Optoelectronics Corp.
Address	No. 1, Chi-Yeh Rd., Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744, Taiwan
Standard	IEC 60065:2001 / EN 60065:2002
Test procedure	CB scheme
Non-standard test method	N/A
Test Report Form/blank test report	
Test Report Form No.	IECEN60065F
TRF originator.	BEAB
Master TRF	Dated 2003-02
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Test item Description	LCD Module
Trademark	 CHI MEI OPTOELECTRONICS
Model and/or type reference	V260B1-XXX (X = 0-9, A-Z or blank)
Manufacturer	Same as applicant.
Rating(s)	For construction A: 5.5Vdc max., 1A max. (for LCD panel) 26.4Vdc max., 4.3A max. (for DC/AC inverter) For construction B: 12.6Vdc max., 2.0A max. (for LCD panel) 26.4Vdc max., 4.7A max. (for DC/AC inverter)

Test case verdicts

Test case does not apply to the test object : N/A

Test item does meet the requirement : P(ass)

Test item does not meet the requirement : F(all)

Testing

Date of receipt of test item : Aug., 2007

Date(s) of performance of test : Aug., 2007

General remarks

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by a NCB, in accordance with IEC 60065:2002.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see appended table)" refers to a table appended to the report.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

Factories:

1. Chi Mei Optoelectronics Corp.
No. 12, Nanke 8th Road, Tainan Science Based Ind. Park, Tainan County 741, Taiwan
2. NINGBO CHI MEI OPTOELECTRONICS LTD.
No. 16, YangZi River North Road, Ningbo Export Processing Zone, Ningbo, P.R. China
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7. CHI MEI OPTOELECTRONICS CORP.
No.3, Sec.1, Huanshi Rd., Tainan Science-Based Industrial Park 74147, Taiwan

Summary of Testing and Conclusions

The sample(s) tested complies with the requirements of IEC/EN 60065:2002.

Summary of compliance with National Differences (for explanation of codes see below):

AR, AT, AU, BE, BR, CH, CN, CZ, DE, DK, FI, FR, GB, GR, HU, IL, IT, JP, KE, KR, ME, MY, NL, NO, PL, PT, RS, RU, SE, SG, SK, SI, UA

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, BR=Brazil, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IT=Italy, JP=Japan, KE=Kenya, KR=Republic of Korea, ME=Montenegro, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, PT=Portugal, RS=Republic of Serbia, RU=Russian Federation, SE=Sweden, SG=Singapore, SK=Slovakia, SI=Slovenia, UA=Ukraine, US=United States of America

Comments:

The equipment is evaluated for supply from a secondary DC source (not DC mains) that provides reinforced or double insulation to primary circuits.

The load conditions used during testing:

- The unit operated under full brightness and contrast of the LCD backlight circuit or operation according product specification.

Unless otherwise specified, all tests were performed on model V260B1-XXX to represent the others similar models.

The test samples were pre-production sample without serial numbers.

The maximum ambient temperature is assumed as 50°C.

History of amendments and modifications:

Ref. No. 11010593 001, dated Jun. 08, 2007 (original test report)

Ref. No. 11010593 002, dated Aug. 27, 2007 (modification)

General Product Information:

Description of change(s):

1. Add two alternative sources of DC/AC inverter for construction A used only.
2. Add the alternative source of LCD panel control board (X board) and metal chassis of X board for construction A used only.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• Input test • Electric shock hazard under normal and abnormal condition • Heating test	The alternative source of DC/AC inverter (Chi Mei type I260B1-12G) is identical to original source (Hon Hai (trademark: CMO) type I260B1-12A (T87I027.02) or I260B1-12C) except for manufacturer name and type designation, therefore no further test necessary, therefore no further test necessary. The alternative source of DC/AC inverter (Chi Mei type I260B1-12F) is new, for test results, see appended table 7.1, 9.1.1 and 11.1. For all sources, see appended table 14 for detail.
2.	• Input test	The new source of X board (type B) is similar to original (type A) except for PCB layout and component location. The new alternative metal chassis (type B) of X board is similar to original (type A) except for no openings provides. See photo documentation as illustration. For test results, see appended table 7.1.

7.1	TABLE: temperature rise measurements		P
	Power consumption in the OFF/Stand-by		N/A
	Position of the functional switch (W)		
Operating conditions			
For Construction A with DC/AC inverter type I260B1-12F			
Max. normal load			
Un (V)	In (A)	Pn (W)	Pout (W)
DC 5.5	0.33	1.82	--
DC 26.4	2.44	64.4	--
	Loudspeaker impedance (Ω)		
	Several loudspeaker systems		N/A
	Marking of loudspeaker terminals		N/A
Monitored point:		dT (K)	Limit dT (K)
For Construction A with DC/AC inverter type I260B1-12F			
L1 coil (X-board)		23	55
U7 body near PCB (X-board)		20	55
U3 body near PCB (X-board)		20	55
U9 body near PCB (X-board)		20	55
T1 coil (inverter)		27	55
U5 body near PCB (inverter)		38	55
T4 coil (inverter)		25	55
U6 body near PCB (inverter)		29	55
U3 body near PCB (inverter)		22	55
LCD panel		15	45
Ambient (°C)		26	--
Comments: The temperatures were measured under worst case normal mode defined in 4.2.1 For winding wires note 4 and for thermoplastics note 6 have been considered in accordance with IEC 60085. With a specified ambient temperature of 50°C, the max. temperature rise is calculated as follows: Parts or components with: - max. absolute temp. of 105°C → $\Delta T_{max} = (105-50) K = 55 K$ Enclosure: - Plastic → $\Delta T_{max} = 60 K - (50-35) K = 45 K$			

Operating conditions					
Winding temperature rise measurements					N/A
Ambient temperature t1 (°C)					
Ambient temperature t2 (°C)					
Temperature rise dT of winding	R ₁ (Ω)	R ₂ (Ω)	dT (K)	Limit dT (K)	Insulation class

9.1.1	TABLE: Electric shock hazard under normal condition					P
Measured between:	U _{oc} (V)	U _r (V)	Limit U ₁	U ₂ (V)	Limit U ₂	
For Construction A with DC/AC inverter type I260B1-12F						
CN3 pin 1 to earth	--	6.80	35	0.20	0.35	
CN3 pin 2 to earth	--	6.80	35	0.24	0.35	
CN3 pin 1 to pin 2	--	6.64	35	0.10	0.35	
CN3 pin 2 to CN2 pin 2	--	6.80	35	0.08	0.35	
T1 pin 1 to earth	--	1.60	35	0.16	0.35	
T1 pin 1 to pin 8	--	3.80	35	0.08	0.35	

11.1	TABLE: Electric shock hazard under fault condition					P
Measured between:	Fault conditions	U _{oc} (V)	U _r (V)	Limit U ₁	U ₂ (V)	Limit U ₂
For Construction A with DC/AC inverter type I260B1-12F						
CN3 pin 1 to earth	R72 open	--	4.96	35	0.24	0.35
CN3 pin 2 to earth	R72 open	--	9.96	35	0.18	0.35
CN3 pin 1 to pin 2	R72 open	--	5.85	35	0.12	0.35
CN3 pin 2 to CN2 pin 2	R72 open	--	8.88	35	0.18	0.35
T1 pin 1 to earth	R72 open	--	1.68	35	0.12	0.35
T1 pin 1 to pin 8	R72 open	--	5.20	35	0.14	0.35
CN3 pin 1 to earth	D9 (1-3) short	--	4.56	35	0.24	0.35
CN3 pin 2 to earth	D9 (1-3) short	--	4.56	35	0.24	0.35
CN3 pin 1 to pin 2	D9 (1-3) short	--	4.64	35	0.20	0.35
CN3 pin 2 to CN2 pin 2	D9 (1-3) short	--	3.84	35	0.20	0.35
T1 pin 1 to earth	D9 (1-3) short	--	1.44	35	0.14	0.35
T1 pin 1 to pin 8	D9 (1-3) short	--	3.84	35	0.12	0.35

Measured between	Fault conditions	U _{oc} (V)	U _i (V)	Limit U _i	U ₂ (V)	Limit U ₂
CN3 pin 1 to earth	D16 (1-3) short	--	6.88	35	0.20	0.35
CN3 pin 2 to earth	D16 (1-3) short	--	6.72	35	0.18	0.35
CN3 pin 1 to pin 2	D16 (1-3) short	--	6.64	35	0.10	0.35
CN3 pin 2 to CN2 pin 2	D16 (1-3) short	--	3.84	35	0.20	0.35
T1 pin 1 to earth	D16 (1-3) short	--	1.44	35	0.14	0.35
T1 pin 1 to pin 8	D16 (1-3) short	--	3.84	35	0.12	0.35
CN3 pin 1 to earth	R85 short	--	6.80	35	0.28	0.35
CN3 pin 2 to earth	R85 short	--	6.64	35	0.20	0.35
CN3 pin 1 to pin 2	R85 short	--	6.56	35	0.26	0.35
CN3 pin 2 to CN2 pin 2	R85 short	--	6.96	35	0.08	0.35
T1 pin 1 to earth	R85 short	--	0.96	35	0.14	0.35
T1 pin 1 to pin 8	R85 short	--	5.44	35	0.10	0.35
CN3 pin 1 to earth	R121 open	--	0.64	35	0.14	0.35
CN3 pin 2 to earth	R121 open	--	0.48	35	0.18	0.35
CN3 pin 1 to pin 2	R121 open	--	0.48	35	0.08	0.35
CN3 pin 2 to CN2 pin 2	R121 open	--	1.52	35	0.08	0.35
T1 pin 1 to earth	R121 open	--	0.80	35	0.12	0.35
T1 pin 1 to pin 8	R121 open	--	0.64	35	0.12	0.35
CN3 pin 1 to earth	D3 pin 2 open	--	4.64	35	0.18	0.35
CN3 pin 2 to earth	D3 pin 2 open	--	6.72	35	0.14	0.35
CN3 pin 1 to pin 2	D3 pin 2 open	--	6.72	35	0.14	0.35
CN3 pin 2 to CN2 pin 2	D3 pin 2 open	--	6.96	35	0.10	0.35
T1 pin 1 to earth	D3 pin 2 open	--	1.44	35	0.20	0.35
T1 pin 1 to pin 8	D3 pin 2 open	--	5.44	35	0.08	0.35
CN3 pin 1 to earth	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35
CN3 pin 2 to earth	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35
CN3 pin 1 to pin 2	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35
CN3 pin 2 to CN2 pin 2	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35
T1 pin 1 to earth	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35
T1 pin 1 to pin 8	U4 (3-5) short	--	0 ^{1.}	35	0 ^{1.}	0.35

Note(s):

1. F1 opened, no hazards.

11.2	TABLE: summary of fault condition tests						P
	Voltage (V) 0,9 or 1,1 times rated voltage						
	Ambient temperature (°C)						
Monitored point:						dT (K)	Limit dT (K)
Under fault conditions specified below							
Part	Fault Conditions	Test Voltage (V)	Test Time	Input current (A)	Remark		
T1 pin 7 to pin 8	short	26.4Vdc	10 min	--	Unit shutdown immediately, no high temp., no hazards.	--	--
Winding temperature rise measurements						N/A	
	Ambient temperature t1 (°C)						
	Ambient temperature t2 (°C)						

14	TABLE: list of critical components and materials				P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference ¹⁾
For Construction A					
DC/AC Inverter (optional)	Chi Mei	I260B1-12G ²⁾	I/P: 26.4Vdc max., 4.3A max., O/P: 5.3 mA, 3000Vrms max.	—	—
- Inverter transformer (T1, T2, T3, T4, T5, T6)	Darfon Electronics (Taiwan) Corp.	EEA-18 (TK.4014L.101)	105°C	—	—
	Dong-Guan Shek-Kit Top Nation Electronic Factory	EFD16.5 (TK.4014L.101)	105°C	—	—
- Inverter fuse (F1, F2, F3)	Cooper Bussmann	3216FF	3A, 63Vdc	—	UL
- PCB	--	--	V-0, 105°C	UL 94	UL
DC/AC Inverter (optional)	Chi Mei	I260B1-12F	I/P: 26.4Vdc max., 4.3A max., O/P: 5.3 mA, 3000Vrms max.	—	—

Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference ¹⁾
- Inverter transformer (T1, T2, T3, T4, T5, T6)	Kun Shan Guann Jye Electronics Co., Ltd.	4014L (EFD-16.5)	105°C	—	—
- Inverter fuse (F1, F2, F3)	Cooper Bussmann	3216FF	3A, 63Vdc	—	UL
- PCB	—	—	V-0, 105°C	UL 94	UL

1) An asterisk indicates a mark which assures the agreed level of surveillance.

2) The source is identical to original source (Hon Hai (trademark: CMO) type I260B1-12A (T87I027.02) or I260B1-12C) except for manufacturer name and type designation.



Ref. Certif. No.

JPTUV-019320

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report.

CHI MEI OPTOELECTRONICS

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Marque de fabrique (si elle existe)

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2. Chi Mei Optoelectronics Corp.
No. 12, Nanke 8th Road
Tainan Science Based Ind. Park
Tainan County 741
Taiwan
3. Nexgen Mediatech Inc.
No. 11-2, Jen Te 4th St.
Jen Te Village
Jen Te, Tainan 717
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4. Novatech Technology GmbH
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5. CHI MEI OPTOELECTRONICS CORP.
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Taiwan
6. NINGBO CHI MEI OPTOELECTRONICS LTD.
No. 16, YangZi River North Road
Ningbo Export Processing Zone
Ningbo
P.R. China
7. Ningbo Prowell Electronic Co., Ltd.
Block 16, South District
Ningbo Free Trade Zone
Ningbo 315800
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)



Date: 11.06.2007

Signature:

Dipl.-Ing. W. Hsu



Ref. Certif. No.

JPTUV-019320-M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product
Produit

LCD Module

Name and address of the applicant
Nom et adresse du demandeur

Chi Mei Optoelectronics Corp.
No. 1, Chi-Yeh Rd.
Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744
Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

Chi Mei Optoelectronics Corp.
No. 1, Chi-Yeh Rd.
Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744
Taiwan

Name and address of the factory
Nom et adresse de l'usine

See additional page(s)

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

For construction A: DC 5.5V max., 1A max. (for LCD panel);
DC 26.4V max., 4.3A max. (for DC/AC inverter); for ratings of
construction B and protection class refer to the test
report.

CHI MEI OPTOELECTRONICS

Trade mark (if any)
Marque de fabrique (si elle existe)

V260B1-XXX (X = 0-9, A-Z or blank)

Model/type Ref.
Ref. de type

Additional information (if necessary)
Information complémentaire (si nécessaire)

For model differences, refer to the test report.
Re-issue of JPTUV-019320 dated 11.06.2007,
due to first modification.

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 60950-1:2001
National differences see test report

As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue une partie de ce Certificat

11010592 002

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 470-3888
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Mail: info@jpn.tuv.com
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Signature:

Dipl.-Ing. F. Stöelzel

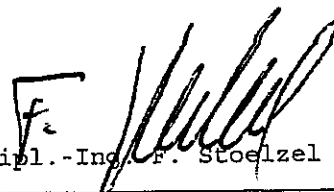
Date: 30.08.2007

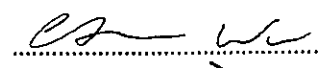
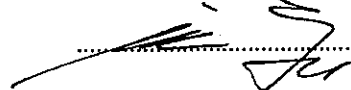
1. FIC CZ s.r.o.
K Vypichu 1138
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Block 16, South District
Ningbo Free Trade Zone
Ningbo 315800
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 30.08.2007

Signature:


Dipl.-Ing. F. Stoelzel

TEST REPORT IEC 60950-1 and/or EN 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report reference No	11010592 002
Tested by (printed name and signature)	Steven Wu 
Approved by (printed name and signature)	Simon Yu 
Date of issue	Aug. 27, 2007
Testing Laboratory Name	TÜV Rheinland Taiwan, Taichung Laboratory
Address	10F, No. 219, Min-Chuan Road, Taichung 403, Taiwan
Testing location	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above.
Applicant's Name	Chi Mei Optoelectronics Corp.
Address	No. 1, Chi-Yeh Rd., Hsin-Shih Village, Tainan Science-Based Ind. Park, Tainan County 744, Taiwan
Test specification	
Standard	IEC 60950-1:2001 EN 60950-1:2001 + A11:2004
Test procedure	CB-scheme
Non-standard test method	N/A
Test Report Form No.	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03
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Test item description	LCD Module
Trademark	 CHI MEI OPTOELECTRONICS
Manufacturer	Same as applicant.
Model and/or type reference	V260B1-XXX (X = 0-9, A-Z or blank)
Serial number	Test samples without serial numbers
Rating(s)	For construction A: 5.5Vdc max., 1A max. (for LCD panel) 26.4Vdc max., 4.3A max. (for DC/AC inverter) For construction B: 12.6Vdc max., 2.0A max. (for LCD panel) 26.4Vdc max., 4.7A max. (for DC/AC inverter)

Particulars: test item vs. test requirements

Equipment mobility : Equipment for building-in
 Operating condition..... : Continuous
 Mains supply tolerance (%) : No direct mains connection
 Tested for IT power systems : No
 IT testing, phase-phase voltage (V) : N/A
 Class of equipment : Not classified for this building-in component, classification shall be evaluated with final system
 Mass of equipment (kg) : 4.5
 Protection against ingress of water : IPX0

Test case verdicts

Test case does not apply to the test object : N/A
 Test item does meet the requirement : P(ass)
 Test item does not meet the requirement : F(ail)

Testing

Date of receipt of test item : Aug., 2007
 Date(s) of performance of test : Aug., 2007

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IEC 60950-1".

The test result presented in this report relate only to the object(s) tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Comments:

Summary of compliance with National Differences (for explanation of codes see below):

EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CA, CH, CN, CZ, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, NO, PL, SE, SG, SI, SK, US.

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

Factory(ies):

1. Chi Mei Optoelectronics Corp.
No. 12, Nanke 8th Road, Tainan Science Based Ind. Park, Tainan County 741, Taiwan
2. NINGBO CHI MEI OPTOELECTRONICS LTD.
No. 16, YangZi River North Road, Ningbo Export Processing Zone, Ningbo, P.R. China
3. Ningbo Prowell Electronic Co. Ltd.
Block 16, South District, Ningbo Free Trade Zone, Ningbo 315800, P.R. China
4. FIC CZ s.r.o.
K Vypichu 1138, 25219 Rudna, Czech Republic
5. Novatech Technology GmbH

- Hans-Martin-Schleyer Str. 8, 47877 Willich, Germany
6. Nexgen Mediatech Inc.
No.11-2, Jen Te 4th St., Jen Te Village, Jen Te, Tainan 717, Taiwan
7. CHI MEI OPTOELECTRONICS CORP.
No.3, Sec.1, Huanshi Rd., Tainan Science-Based Industrial Park, 74147, Taiwan

Definition of variables:

Variable:	Range of variable:	Content:
X	0-9, A-Z or blank	for marketing purpose

History of amendments and modifications:

Ref. No. 11010592 001, dated Jun. 08, 2007 (original test report)

Ref. No. 11010592 002, dated Aug. 27, 2007 (modification)

General product information:

Description of change(s):

1. Add two alternative sources of DC/AC inverter for construction A used only.
2. Add the alternative source of LCD panel control board (X board) and metal chassis of X board for construction A used only.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	• Input test • Limited current circuit measurement • Heating test • Abnormal test	The alternative source of DC/AC inverter (Chi Mei type I260B1-12G) is identical to original source (Hon Hai (trademark: CMO) type I260B1-12A (T87I027.02) or I260B1-12C) except for manufacturer name and type designation, therefore no further test necessary, therefore no further test necessary. The alternative source of DC/AC inverter (Chi Mei type I260B1-12F) is new, for test results, see appended table 1.6.2, 2.4.2 and 4.5.1. For all sources, see appended table 1.5.1 for detail.
2.	• Input test	The new source of X board (type B) is similar to original (type A) except for PCB layout and component location. The new alternative metal chassis (type B) of X board is similar to original (type A) except for no openings provides. See photo documentation as illustration. For test results, see appended table 1.6.2.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.4	Limited current circuits <i>For DC/AC inverter: Chi Mei type I260B1-12F.</i>		P
2.4.1	General requirements		P
2.4.2	Limit values	See below.	P
	Frequency (Hz)	See appended table 2.4.	—
	Measured current (mA)	See appended table 2.4.	—
	Measured voltage (V)	1576	—
	Measured capacitance (μF)	Less then 28,6nF.	—
2.4.3	Connection of limited current circuits to other circuits	Complied.	P

1.5.1	TABLE: list of critical components					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity	
For Construction A						
DC/AC Inverter (optional)	Chi Mei	I260B1-12G ²	I/P: 26.4Vdc max., 4.3A max., O/P: 5.3 mA, 3000Vrms max.	—	--	
- Inverter transformer (T1, T2, T3, T4, T5, T6)	Darfon Electronics (Taiwan) Corp.	EEA-18 (TK.4014L.101)	105°C	--	--	
	Dong-Guan Shek-Kit Top Nation Electronic Factory	EFD16.5 (TK.4014L.101)	105°C	--	--	
- Inverter fuse (F1, F2, F3)	Cooper Bussmann	3216FF	3A, 63Vdc	—	UL	
- PCB	—	--	V-0, 105°C	UL 94	UL	
DC/AC Inverter (optional)	Chi Mei	I260B1-12F	I/P: 26.4Vdc max., 4.3A max., O/P: 5.3 mA, 3000Vrms max.	—	--	
- Inverter transformer (T1, T2, T3, T4, T5, T6)	Kun Shan Guann Jye Electronics Co., Ltd.	4014L (EFD-16.5)	105°C	--	--	
- Inverter fuse (F1, F2, F3)	Cooper Bussmann	3216FF	3A, 63Vdc	—	UL	
- PCB	—	--	V-0, 105°C	UL 94	UL	
Note(s):						
1. An asterisk indicates a mark that assures the agreed level of surveillance.						
2. The source is identical to original source (Hon Hai (trademark: CMO) type I260B1-12A (T87I027.02) or I260B1-12C) except for manufacturer name and type designation.						

1.6.2	TABLE: electrical data (in normal conditions)					P
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status
For Construction A with DC/AC inverter type I260B1-12F and X board type B						
--	1.0	5.5Vdc	1.82	0.33	--	Max. normal load. (for LCD panel)
--	4.3	26.4Vdc	64.4	2.44	--	Max. normal load. (for D/A inverter)

Note(s):

2.4.2	TABLE: limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq (kHz)	Limit (mA)	Comments	
For Construction A with DC/AC inverter type I260B1-12F						
normal condition						
CN3 pin 1 to earth	20.4	10.2	58	40.6		
CN3 pin 2 to earth	25.2	12.6	58	40.6		
CN3 pin 1 to pin 2	21.6	10.8	58	40.6		
CN3 pin 2 to CN2 pin 2	24.4	12.2	58	40.6		
T1 pin 1 to earth	7.68	3.84	54	37.8		
T1 pin 1 to pin 8	14.0	7.0	59	41.3		
single fault condition (R72 open)						
CN3 pin 1 to earth	19.8	9.9	58	40.6		
CN3 pin 2 to earth	45.2	22.6	58	40.6		
CN3 pin 1 to pin 2	9.6	4.8	59	41.3		
CN3 pin 2 to CN2 pin 2	41.2	20.6	58	40.6		
T1 pin 1 to earth	3.36	1.68	658	70		
T1 pin 1 to pin 8	20.0	10.0	58	40.6		
single fault condition (D9 pin 1-3 short)						
CN3 pin 1 to earth	21.2	10.6	58	40.6		
CN3 pin 2 to earth	22.4	11.2	59	41.3		
CN3 pin 1 to pin 2	19.2	9.6	58	40.6		
CN3 pin 2 to CN2 pin 2	21.2	10.6	58	40.6		
T1 pin 1 to earth	11.2	5.6	55	38.5		
T1 pin 1 to pin 8	15.6	7.8	60	42.0		
single fault condition (D16 pin 1-3 short)						
CN3 pin 1 to earth	32.2	16.1	59	41.3		
CN3 pin 2 to earth	30.8	15.4	59	41.3		
CN3 pin 1 to pin 2	27.2	13.6	59	41.3		
CN3 pin 2 to CN2 pin 2	35.6	17.8	58	40.6		
T1 pin 1 to earth	4.96	2.48	54	37.8		
T1 pin 1 to pin 8	18.6	9.3	57	39.9		
single fault condition (R85 short)						
CN3 pin 1 to earth	29.2	14.6	58	40.6		
CN3 pin 2 to earth	31.2	15.6	58	40.6		
CN3 pin 1 to pin 2	25.6	12.8	58	40.6		

CN3 pin 2 to CN2 pin 2	32.0	16.0	58	40.6	
T1 pin 1 to earth	7.52	3.76	63	44.1	
T1 pin 1 to pin 8	18.4	9.2	59	41.3	
single fault condition (R121 open)					
CN3 pin 1 to earth	6.8	3.4	58	40.6	
CN3 pin 2 to earth	2.0	1.0	1.25M	70	
CN3 pin 1 to pin 2	1.4	0.7	1.6M	70	
CN3 pin 2 to CN2 pin 2	5.28	2.64	58	40.6	
T1 pin 1 to earth	2.4	1.2	154	70	
T1 pin 1 to pin 8	1.28	0.64	2.41M	70	
single fault condition (D3 pin 2 open)					
CN3 pin 1 to earth	19.2	9.6	58	40.6	
CN3 pin 2 to earth	21.2	10.6	58	40.6	
CN3 pin 1 to pin 2	16.0	8.0	59	41.3	
CN3 pin 2 to CN2 pin 2	20.4	10.2	58	40.6	
T1 pin 1 to earth	6.56	3.28	67	46.9	
T1 pin 1 to pin 8	14.4	7.2	60	42.0	
single fault condition (U4 pin 3-5 short)					
CN3 pin 1 to earth	0	0	--	--	F1 opened, no hazards.
CN3 pin 2 to earth	0	0	--	--	F1 opened, no hazards.
CN3 pin 1 to pin 2	0	0	--	--	F1 opened, no hazards.
CN3 pin 2 to CN2 pin 2	0	0	--	--	F1 opened, no hazards.
T1 pin 1 to earth	0	0	--	--	F1 opened, no hazards.
T1 pin 1 to pin 8	0	0	--	--	F1 opened, no hazards.
Note(s): Output measured with a 2kΩ non-conductive resistor as load.					

4.5.1	TABLE: maximum temperatures		P
	test voltage (V)	5.5Vdc and 26.4Vdc	
	t1 (°C)	--	
	t2 (°C)	--	
Maximum temperature T of part/at:		T (°C)	allowed T _{max} (°C)
For Construction A with DC/AC inverter type I260B1-12F and X board type B			
L1 coil (X-board)	73	105	
U7 body near PCB (X-board)	70	105	
U3 body near PCB (X-board)	70	105	
U9 body near PCB (X-board)	70	105	

T1 coil (inverter)	77	105
U5 body near PCB (inverter)	88	105
T4 coil (inverter)	75	105
U6 body near PCB (inverter)	79	105
U3 body near PCB (inverter)	72	105
LCD panel	65	95
Max. ambient temperature T _{ma} (°C): Note: ambient air during test were T _{amb} = 26°C	50	--

Temperature T of winding	R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed T _{max} (°C)	insulation class

Note(s):

The temperatures were measured under worst-case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described above.

With a specified ambient temperature of 50°C.

The max. ambient temperature T_{ma} is defined as 50°C. Therefore the maximum temperatures measured are recalculated as follows: T + (50 – T_{amb}) where T is the maximum temperature measured during test and T_{amb} is the ambient temperature during test.

5.3	TABLE: fault condition tests						P
	ambient temperature (°C)	:	25°C				
	model/type of power supply	:	--				
	manufacturer of power supply	:	--				
	rated markings of power supply	:	--				

No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result
-----	---------------	-------	------------------	-----------	----------	------------------	--------

For Construction A with DC/AC inverter type I260B1-12F

1.	T1 pin 7 to 8	short	26.4Vdc	10 min	--	--	Unit shut down immediately, no high temp., no hazards.

Note(s):